Demographic, economic, and growth initiative analysis:
Big Bend Region of Florida

For:
The Conservation Fund

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Executive Summary

The Big Bend region of Florida--Jefferson, Taylor, Dixie, and Levy counties—is a land of working forests, farms, rivers, springs, estuaries, and an extensive Gulf coastline. The people of this rural region rely more on the natural resources for their livelihood and recreation than most places in Florida. An investigation of the region's population and economy based on secondary data and bolstered by on-site visits and interviews of local officials and state economic professionals found a region rich in the traditions of "Old Florida" but struggling to keep pace with rapid changes and growth in other areas of the state.

Among key findings:

- The area is very rural with a declining population that is characterized by lower incomes, lower education levels, net out-migration, and a comparatively older population, relative to the rest of the state.
- The economic analysis demonstrated the central role that natural resource industries play in the prosperity of the Big Bend region and its residents. The health and continued productivity of the natural resource base, especially the working forests and its waters, are critical to the region's future.
- The region seeks growth but needs to consider creative approaches to make fuller use of available resources. Mature industries such as farming, forestry, and natural resource-based manufacturing must continually innovate to stay competitive. They also must sustain the health of the natural resources upon which they rely to ensure continued economic growth. Nature-based and experiential tourism can also capitalize on the rich natural resources so long as they are adequately protected, accessible, and the appropriate tourism infrastructure exists.
- Both leaders and residents have a strong appreciation for the unique nature of their region and are protective of its cultural heritage. During interviews, county leaders expressed broad support for maintaining current protection and conservation of the region's natural assets as the basis for long-term economic growth and sense of place. This sentiment was echoed by representatives of the area's timber industry in conversations specifically about the forest resources.
- County leaders identified the need for balance between growth and conservation: maintaining existing natural resource areas to support the economy and quality of life for residents and using other areas for compatible development. The approach recognizes the need for a multi-layered strategy for economic growth.
- Each county features a distinct mix of natural resources upon which they are reliant. Some counties benefit to a greater extent from their abundant forests, while others benefit more from their farmlands or access to the Gulf Coast. The future of economic growth is then by default not a "one size fits all" approach. Efforts instead might be best served by calling upon collaborative and innovative approaches, leveraging the strengths and opportunities within each county as part of an overarching regional strategy.

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Introduction

The future prosperity of rural communities is often tied to natural resources. The Big Bend region of Florida's Gulf coast, including Jefferson, Taylor, Dixie, and Levy Counties, is no exception. The region is home to abundant natural resources ranging from productive working forests and farms to freshwater springs and an extensive coastline that offer a variety of economic and recreational opportunities. Continuing a tradition of careful development and management of those resources in the face of changing demographics will be critical to sustaining economic opportunities for residents of the region.

The working forests and farms, freshwater rivers and springs, and the extensive Gulf coastline define the work and recreational lives of the people who call this home. The growth of more and better jobs and further economic development in the Big Bend region hinges on continued careful management of these natural resources in the years ahead.

Federal, state, and local government agencies along with stakeholders in the industry and private sectors all play a role in directing and supporting economic growth in the Big Bend region (Figure 1). Each entity employs different policy tools to achieve its goals. Each county within the Big Bend region hosts its own local development organization and unique initiatives and engages with varied regional partnerships. The policies and development efforts in counties upstream (northeast) in the Suwannee River watershed also have a major impact on the region. Together with federal and state agencies, there are many separate initiatives underway at any given time. Coordination among the various public and private organizations toward a common long-term vision is the key to successful and sustainable economic development against a backdrop of shared environmental strengths and related concerns that unify the region and the unique challenges and opportunities that make each county distinct in its own way.

The Conservation Fund (TCF), with a dual mission to pursue both environmental and economic outcomes, is focusing on the Big Bend region to complement its existing work in the area. TCF has been an active partner in the region for over 15 years, keeping working forests in economic production and supporting the associated benefits of maintaining strong communities, protecting drinking water, preserving recreational access, and continuing the area's hunting traditions. Since 1985, TCF has worked nationwide with partners to leverage conservation to support robust economic outcomes and community benefits.

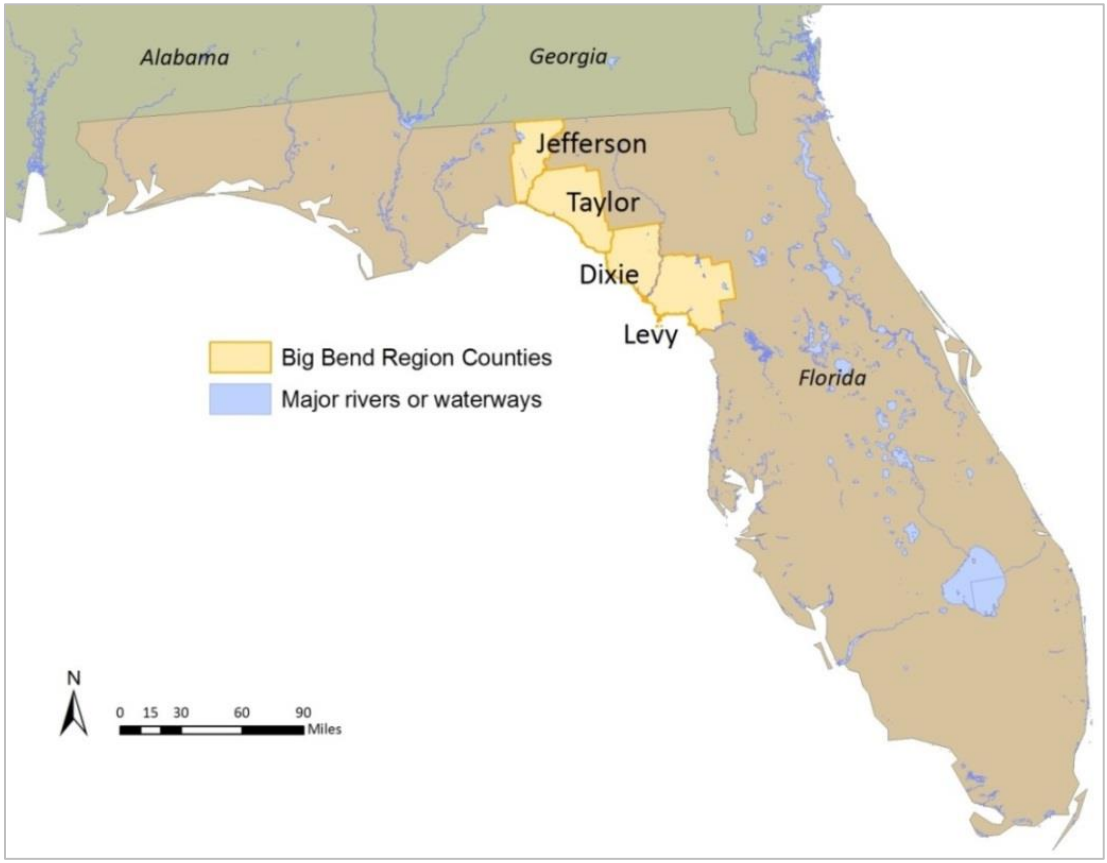
With assistance from Southwick Associates, a Florida economic consulting firm, TCF recently assessed the opportunities and challenges that face the region to help guide its involvement in regional development efforts. The investigation relied on existing economic data, bolstered by on-site visits with county leaders and personal interviews of local and state economic development officials, to gain an intimate understanding of the issues that matter most to the

local community. The result is a comprehensive look at the trends and forces that have shaped the economy of the Big Bend.

Given the role that natural resources play in the Big Bend's economy, this report highlights how the natural assets will continue to play a key role in the economic future the region, examines policies that could affect the region's development, and explores new directions at the regional or local levels for strengthening the Big Bend economy and community. By fostering greater awareness, the project seeks to strengthen community capacity for protecting and enhancing the natural environment as a resource for future sustainable economic growth through an asset-based economic strategy. The International City/County Management Association recently noted, "Combining agriculture and natural resource production with management of rural landscapes and ecosystems, which allows for longer-term, sustainable use of those natural and working landscapes, can be a positive asset-based economic strategy" (Hibbard, 2012).

This report is separated into three categories: 1) Demographic analysis, 2) Economic analysis, and 3) Policy analysis. By providing a broad overview and using a variety of resources, this document is intended to serve as a means to inform policymakers in the Big Bend of the natural resource relationships that shape the region's economy. It also serves as a foundation supporting information-based decision-making for the region's future.

Figure 1. The Big Bend Region



Approach

Demographic analysis

Healthy population dynamics are the foundation for long-term economic growth of a region. This study provides an in-depth investigation of demographic trends within the Big Bend region. The specific areas examined include:

- Age, gender, and ethnic composition
- Population dynamics (birth, death, and migration)
- Income distributions
- Education attainment and enrollment
- Workforce employment and occupational composition

Economic analysis

The four coastal Big Bend counties are generally characterized by a reliance on natural resource industries oriented around forests, agriculture, marine resources, and coastal rivers. Understanding the contribution of these resources and their integration into the broader economy of the region is critical to making informed policy decisions. This analysis uses three approaches to measure and define the region's economy and its dependence on the primary resource-based sectors. They include:

- Descriptive analytics using historical economic data

  Secondary economic data were collected and analyzed to identify the changing composition of the region's economy and the role of natural resource-based industries. The investigation focuses on trends regarding three key economic factors:
  - Total employment trends by sector
  - Total and average labor income in key sectors
  - Trends in entrepreneurial activity in the region based on small business activity and rates of business formation and business failures.

- Shift-share analysis

  Shift-share analysis is a technique used to examine a local economy within the context of the larger surrounding economy. By comparing changes in the Big Bend to the statewide economy, shift-share breaks down economic changes into three basic forces or effects:
  - *Regional growth effect*: The portion of the change attributed to the total growth of the Florida economy.
  - *Industry mix effect*: The portion of the change attributed to the specific mix of industries within the Big Bend economy.

- *Local competitive effect*: The portion of the change attributed to the unique competitive advantage (or disadvantage) of industries in the Big Bend regional economy.

- Input-output analysis

  Input-output models trace the flow of dollars between economic sectors and are the source of economic multipliers used to estimate the ripple effect on jobs, income and economic activity when change comes to a local economy. The results explain how the various industry sectors in the Big Bend (forestry, fisheries, manufacturing, lodging, tourism, wholesale, etc.) are inter-related to other sectors within and outside the region as well as how development in one sector may or may not benefit others within each individual county and the region. The analysis makes use of countylevel models purchased from Implan Group, LLC.

Policy analysis

This section examines the local economic development agencies and policy tools in place across the Big Bend region, as well as targeted "upstream" regions. On-site visits and follow-up interviews were conducted with county managers and economic development and tourism specialists covering Dixie, Jefferson, Levy, and Taylor counties. The purpose of the interviews was to gain a better understanding of the drivers behind recent economic trends and current economic development activities, both actual and potential.

The follow-up interviews were conducted by phone over a period of twelve business days in December 2014, with one more in the first week of January, 2015. Interview questions were provided to respondents in advance to allow respondents the opportunity to research and prepare answers and to obtain input from other colleagues if necessary or desired. These approximately one-hour interviews allowed for in-depth discussions on the survey questions along with detailed opinions.

By January 8, 2015, ten interviews were completed, representing all four counties. Of the respondents that did not participate in the survey, one declined, three referred to other contacts already on the survey list, and the others did not respond to repeated phone calls and or email requests. Because not all of the survey questions were applicable to every respondent, there were surveys that were not completed in their entirety. Some respondents declined to respond to specific questions because they did not consider themselves knowledgeable on the subject in question.

A catalog of federal and state economic development programs was also compiled and included within the policy analysis section of the report. Specifically, information from the Florida Department of Economic Opportunity and non-profit organizations in Florida with statewide responsibility for economic development was gathered to learn about programs, policies, and

initiatives in place which impact the region. This state-level research was used to identify the federal agencies and programs which have a presence in the Big Bend region.

Against a backdrop of the region's strengths (S) and weaknesses (W), the policies were examined to identify opportunities (O) to implement new strategies or tactics to ensure future stability and growth and threats (T) to the long-term health of key industries. The resulting SWOT analysis is included within the Policy analysis section of the report. The goal is to identify policy gaps as well as opportunities to ensure sustainable utilization of the region's resources and long-term economic growth. The results provide ideas for future development efforts while maintaining the health of the region's natural resources.

Findings

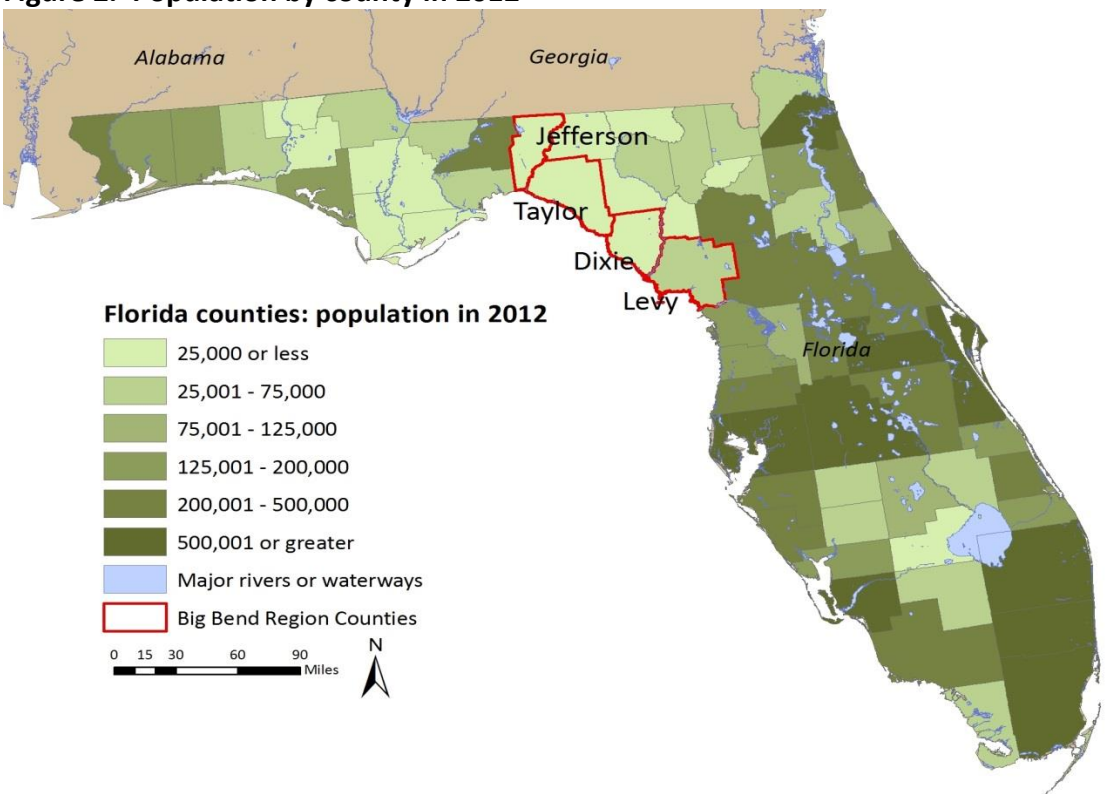
Demographic analysis

This section compares the Big Bend counties to the rest of Florida on a number of demographic measures including total population, age, education, and race. The results show the distinct variations within the region and how individual counties compare to the rest of the state.

Population

The Big Bend region of Florida is a rural area located along the west coast of Florida as it curves westward into the panhandle. The landscape consists largely of forested wetlands and sparsely populated tracts of forest lands. The population of Florida is estimated to be over 19 million people. The combined population within the Big Bend counties is approximately 93,000, or about 0.5% of the statewide population. The region is one of the less densely populated regions in the state (Figure 2).

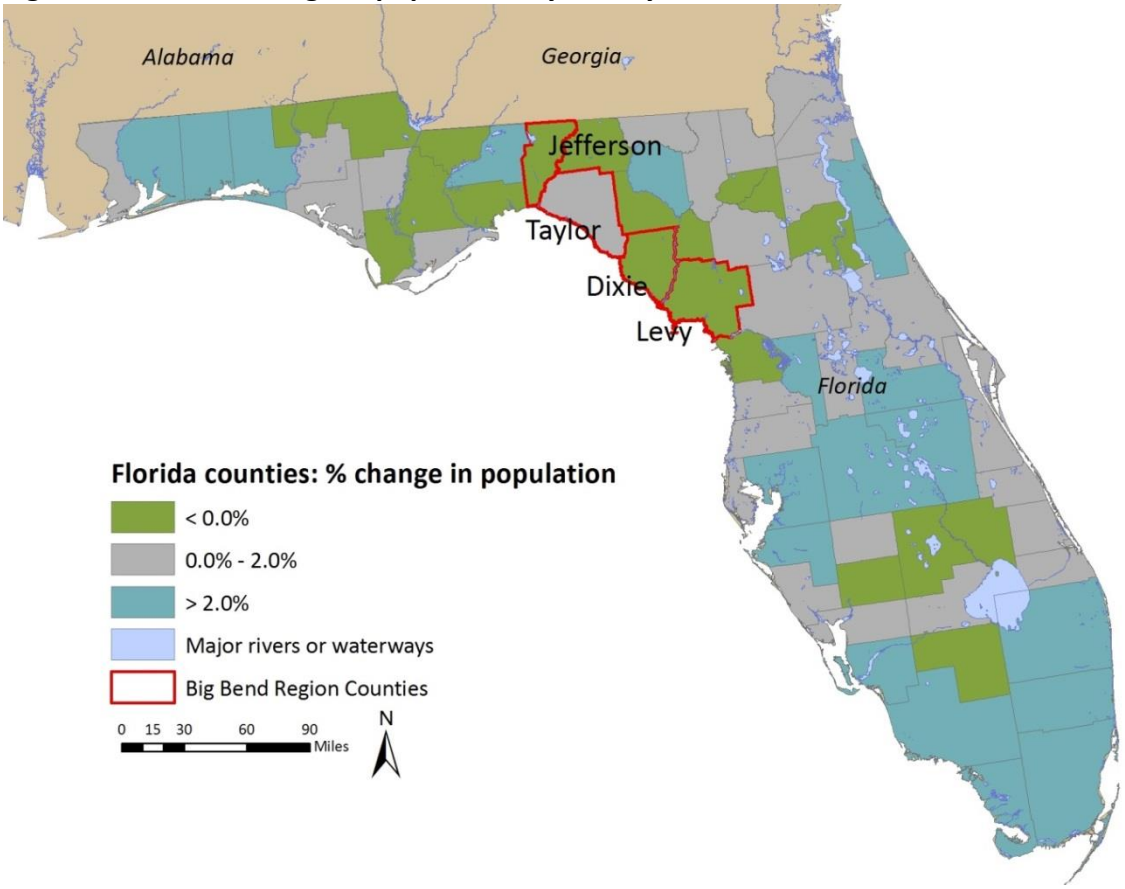
Figure 2. Population by county in 2012



Source: U.S. Census Bureau

Population growth and contraction between 2010 and 2012 is shown in Figure 3. While much of Florida has seen continued growth in recent years, pockets of the state have seen declining populations. Typically, those counties experiencing declines are rural areas and most of them are concentrated in the Big Bend and the state's panhandle region.

Figure 3. Percent change in population by county between 2010 and 2012



Source: U.S. Census Bureau

Of the four Big Bend counties, only Taylor County experienced positive population change between 2010 and 2013 (Table 1). Yet, Florida experienced an overall statewide increase of 4.0% during that time period. The decline represents a reversal of sorts. During the decade from 2001 to 2010, population growth in the Big Bend outpaced the statewide rate. Yet, since 2010, population has declined in the Big Bend while it continued to grow statewide. Table 1 shows the declines in the Big Bend are mostly the result of net out-migration while the state overall saw strong net in-migration. Where Florida saw large numbers of new residents moving to the state, they mostly were choosing to settle in places other than the Big Bend region.

Table 1. Population change by county between 2010 and 2013

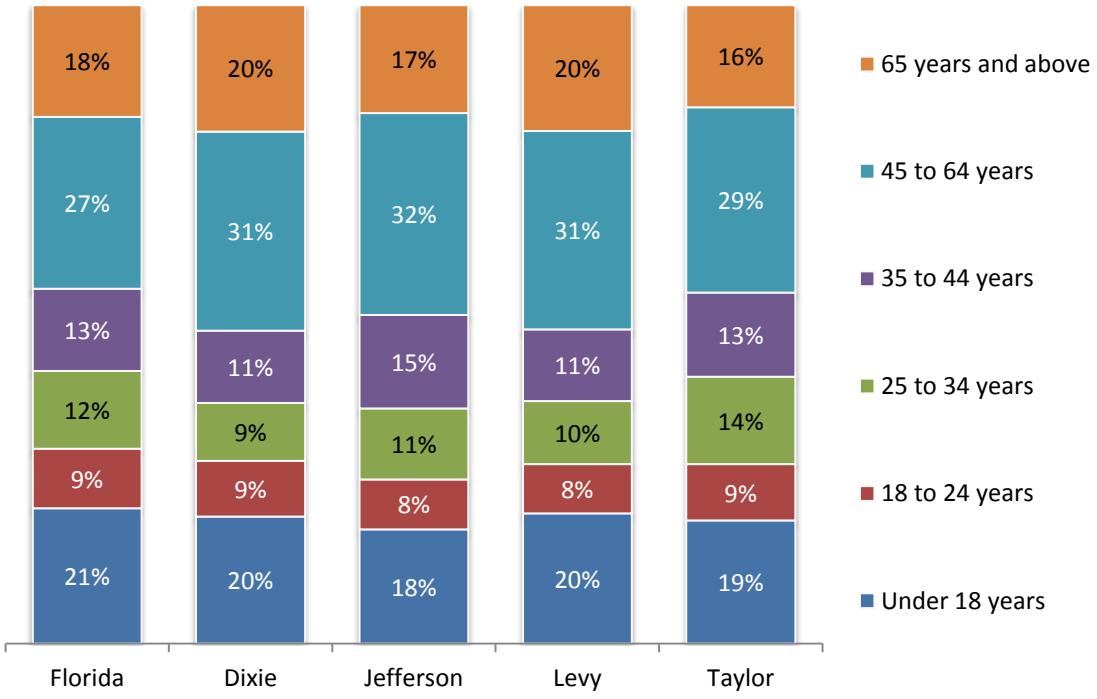
	Total change	Natural change*	Migration change
Dixie County	-2.9%	-0.7%	-2.1%
Jefferson County	-3.8%	-0.2%	-3.7%
Levy County	-2.8%	-1.0%	-1.9%
Taylor County	1.3%	0.4%	0.9%
Florida Statewide	4.0%	0.6%	3.3%

*Natural change = Births - Deaths

Age

The age structure of the population is an important factor in the long-term health of an economy. To sustain long-term economic growth and health, a sizeable population of working-age people is needed. Three of the Big Bend counties have a sharp difference in the proportion of people 25 to 44 years of age compared to those in the 45 to 65 year category (Dixie: 20% versus 31%, Jefferson: 26% versus 32%, Levy: 21% versus 31%) (Figure 4). All counties and the state show a higher proportion of 45-64 year olds. Taylor County tracks closest to the state trend. The data is not able to reveal whether this is solely a response to the aging of the Baby Boomer population, the influx of people seeking to relocate to sunnier climates, an outmigration of people seeking employment or higher wages, or rather a combination of factors. This does suggest the potential for long-term challenges in replacing the future workforce as people approach retirement age.

Figure 4. Population by age category for state and counties in 2012

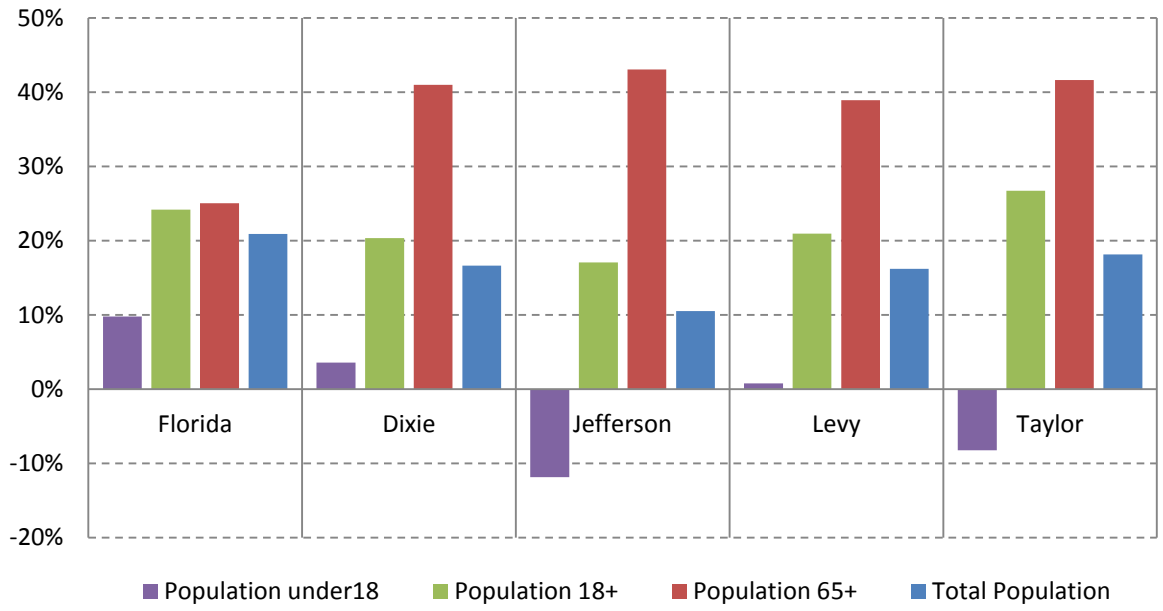


Source: U.S. Census Bureau 2012 American Community Survey

Another key concern for the region is the changing age demographics in recent years. Older age categories are growing faster in the Big Bend region than across the state, overall (Figure 5). In all Big Bend counties except Taylor, growth in the working-years age category (18-65 years) has lagged the rest of Florida. Combined with evidence of net outmigration, the slow growth in this category suggests that working-age people are likely leaving the region. This outward migration further impacts the region's birthrate, thus creating even lower growth in the under-18 category. Taylor and Jefferson have experienced declining numbers of their under-18

population since 2001. This can be the result of an aging population with no in-migration, an out-migration of families, or low birth rates.

Figure 5. Change in population by age category for state and counties between 2000 and 2012



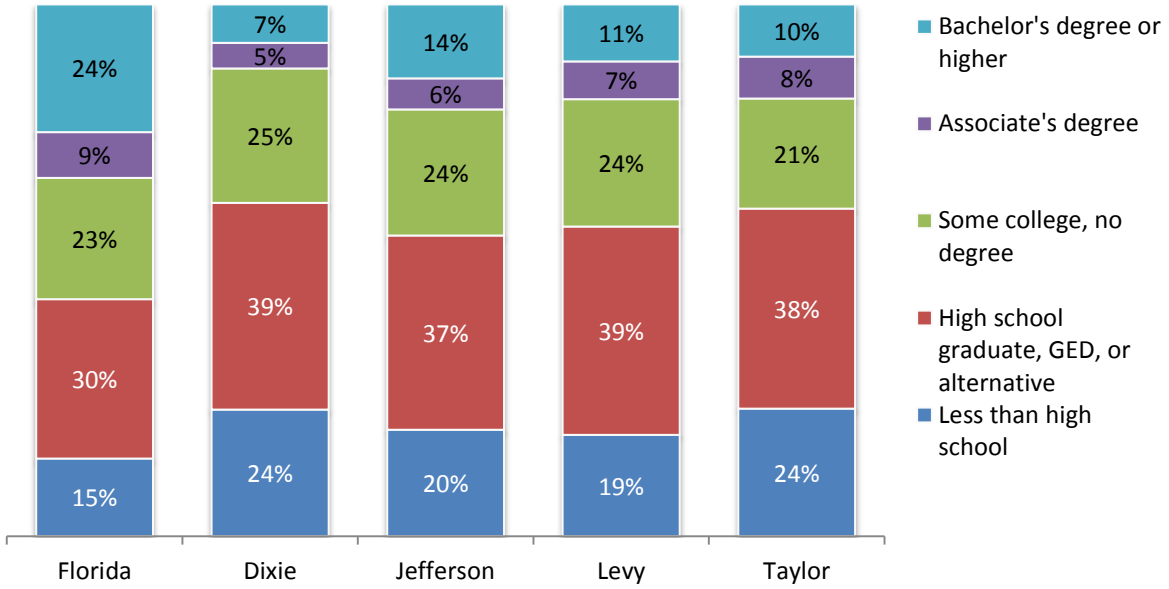
Source: U.S. Census Bureau 2012 American Community Survey and 2000 Census

Education

Education is a measure of human capital, a term used to describe the stock of knowledge, skills, and abilities available in the population. A significant population of well-educated workers can mean efficient management, sound decision making, innovation, and the workforce skills to attract businesses that offer higher paying skilled employment.

Figure 6 shows the proportional breakout of the population with varying levels of education. In all of the counties, the biggest part of the population has only a high school diploma or less. While about the same percentage of Big Bend and Florida residents have some college, the state overall has a higher percentage of residents who earn associate or bachelor's degrees or higher. The Big Bend region, however, has a substantially larger proportion of its population with no high school diploma than Florida's average, thus generally limiting employment opportunities. It may be that educated residents in the Big Bend are more likely to move out of the region to find employment, or fewer residents overall seek higher education, thus decreasing the region's overall level of education.

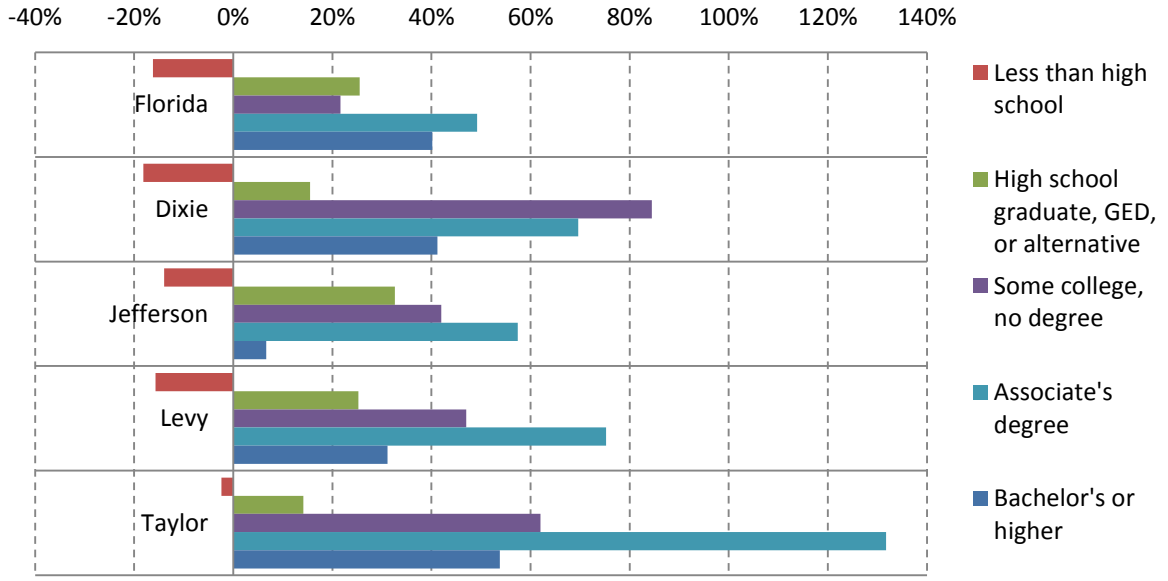
Figure 6. Educational attainment by state and county in 2012



Source: U.S. Census Bureau 2012 American Community Survey

One trend since 2000, however, looks more promising for the Big Bend region. Across the region, educational attainment above high school but less than a four-year degree has been increasing faster compared to Florida (Figure 7). This trend is especially true in Taylor County which had a large percentage increase in both associate degrees and graduate or professional degrees attained. The proportion of the population with less-than-high school education is also shrinking faster in the Big Bend compared to the state overall.

Figure 7. Change in educational attainment level for state and county between 2000 and 2012



Source: U.S. Census Bureau 2012 American Community Survey and 2000 Census

Income & poverty

Two measures of affluence are explored here, average household income and poverty rates, over the period between 2005 and 2013. Average household income in each of the counties falls below the statewide average (Table 2). Households in Dixie County have the lowest income levels in the region while Jefferson County reports the highest income levels. Incomes in the Big Bend region did grow at a slightly greater rate than across Florida and grew the most rapidly in Taylor County.

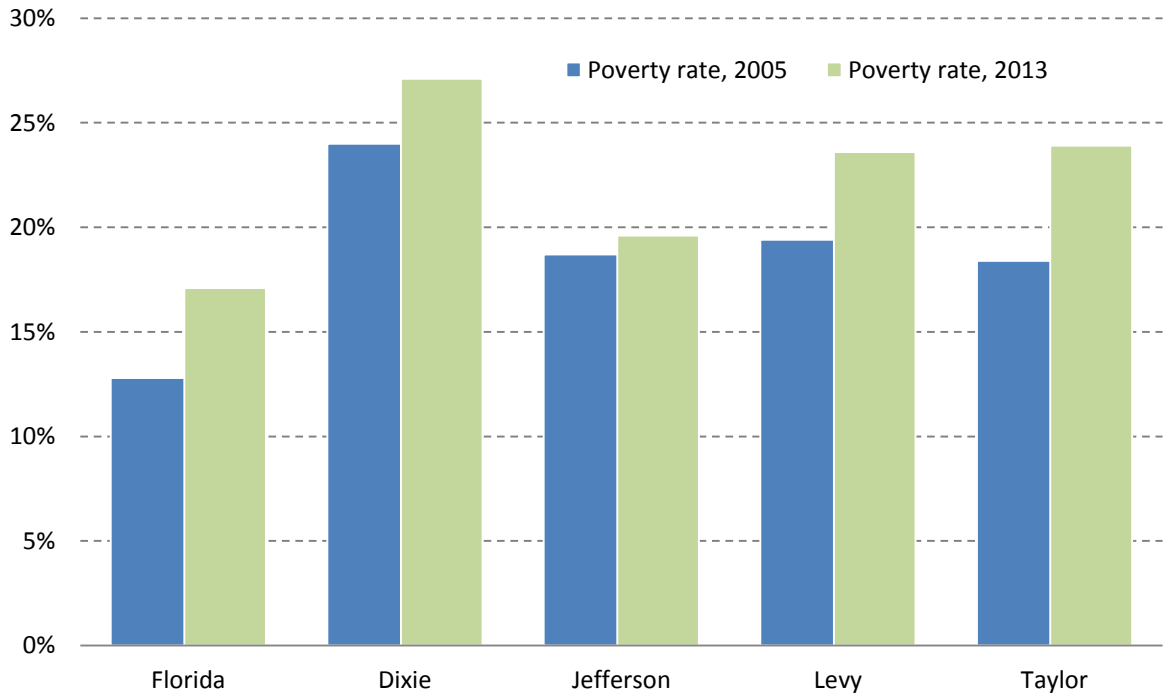
Table 2. Household income by state and county in 2005 and 2013

	Florida	Dixie	Jefferson	Levy	Taylor
Household Income 2005	$42,437	$28,251	$35,349	$29,917	$32,680
Household Income 2013	$46,021	$31,649	$39,494	$33,193	$38,370
Percent change	8.4%	12.0%	11.7%	11.0%	17.4%

Source: U.S. Census Bureau Small Area Income Estimates

Despite the growing household incomes, poverty rates remain higher in the Big Bend region compared to the state (Figure 8). Dixie County has the highest levels of poverty, consistent with the low levels of household income. Despite the greatest increase in household incomes in Taylor County, it also had the largest increase in poverty rate.

Figure 8. Poverty rate by state and county in 2005 and 2013

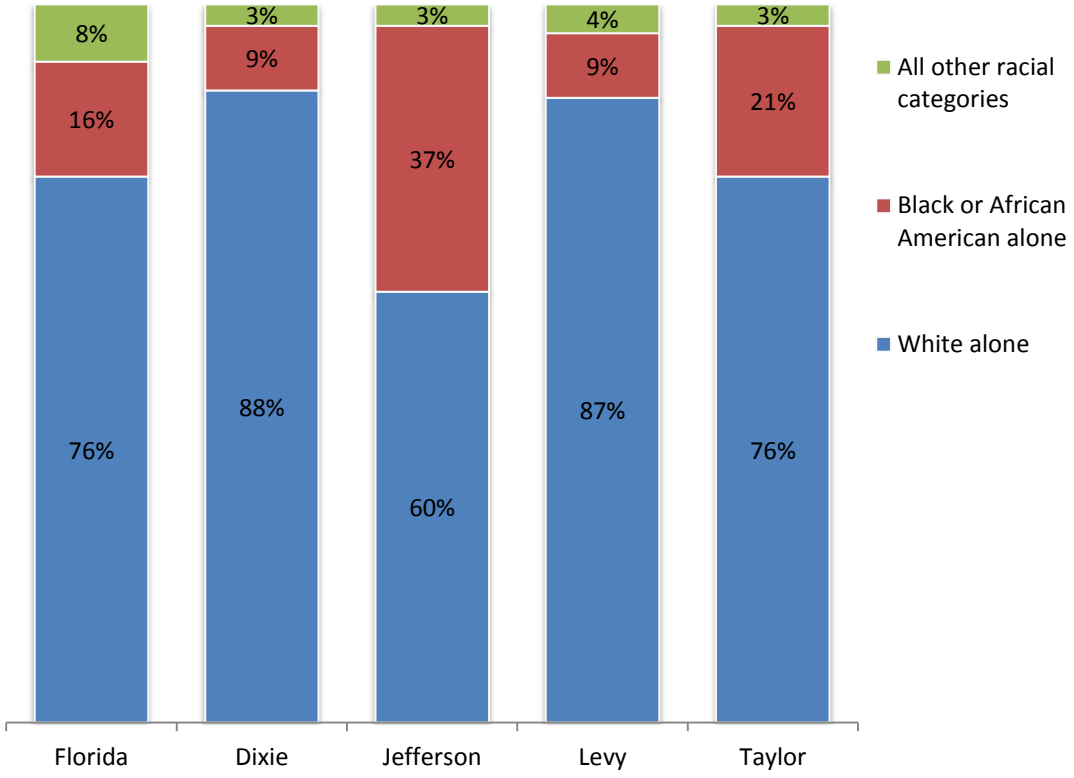


Source: U.S. Census Bureau Poverty Estimates

Race

The majority of the population across all of the counties identifies their race as white alone (Figure 9). The second most common race is Black or African American alone. In both Jefferson and Taylor counties, there is a much larger proportion of Black or African Americans, relative to the neighboring counties or the state. The racial diversity across the Big Bend counties is influenced by a variety of factors. For example, the racial majority of Monticello, the county seat in Jefferson County, is African American. The presence of correctional facilities could also potentially account for some of the difference in racial distribution.[1]

Figure 9. Racial distribution by state and county in 2012

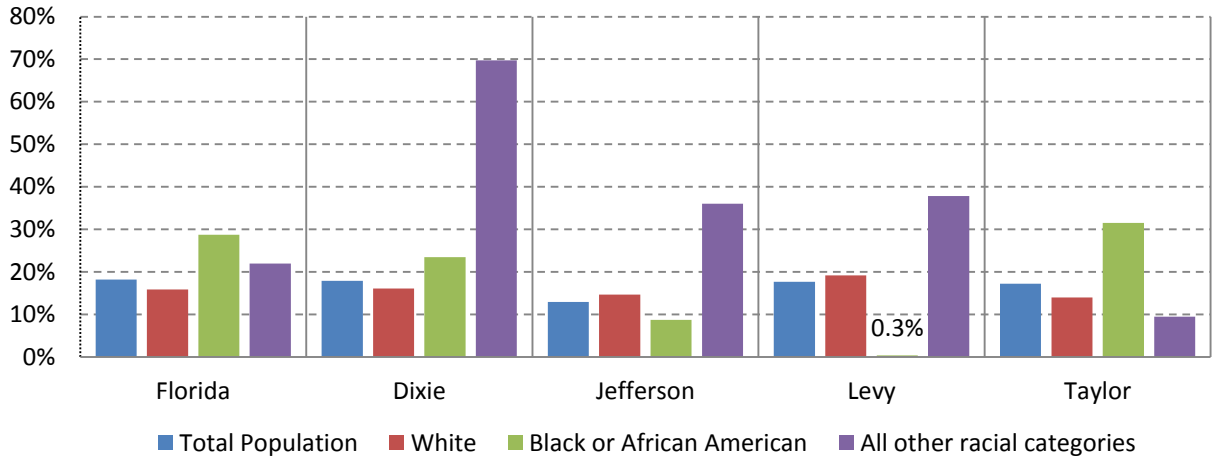


Source: U.S. Census Bureau 2012 American Community Survey

"All other racial categories" make up a small percentage of each county. Included in this category are the following: American Indian, Alaska Native, Asian alone, Native Hawaiian, Other Pacific, other race alone, and two or more races. This non-Black/White population in Dixie County, though very small, has grown since 2000 (Figure 10). The Hispanic population--which crosses racial categories--ranges from 4% in Dixie County to 8% in Levy County, compared to 24% of the statewide population.

[1] The data does not allow the ability to determine the exact size of the population within these correctional facilities. It can identify the size of the "Civilian Institutionalized population" defined as all U.S. civilians residing in institutional group quarters facilities such as correctional institutions, juvenile facilities, skilled nursing facilities, and other long-term care living arrangements. The size of this population for each county is: Dixie (13%), Jefferson (13%), Levy (7%), and Taylor (12%).

Figure 10. Change in racial distribution by state and county between 2000 and 2012

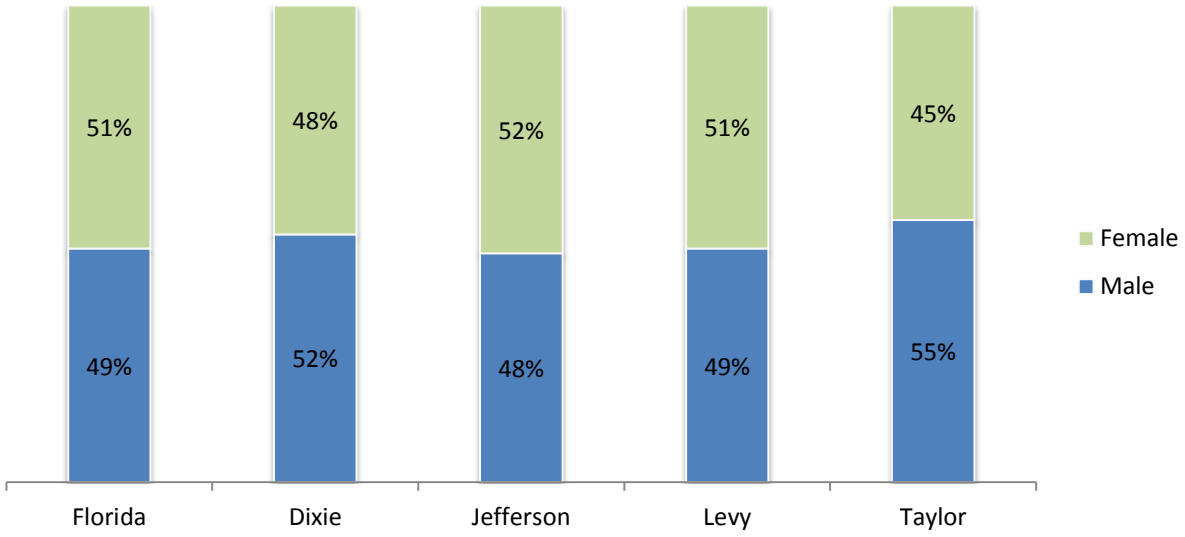


Note: The large change in racial distribution among "All other racial categories", particularly in Dixie County, is largely driven by the growth in the population of individuals identifying themselves as multi-racial. Levy and Taylor Counties also saw moderate growth in the size of their Asian populations.
Source: U.S. Census Bureau 2012 American Community Survey and 2000 Census

Gender

The male/female distribution is evenly balanced, with only a slightly higher portion of the population being male in Taylor County (Figure 11).

Figure 11. Gender distribution by state and county in 2012



Source: U.S. Census Bureau 2012 American Community Survey

Economic analysis

This section of the report presents a broad range of economic information to create a full understanding of past trends in the Big Bend region and implications for future policy decisions. The first part of this section is a descriptive summary of existing secondary data to show the relative importance of the different sectors of the region's economy and their contribution to jobs and income. The second part provides a series of analytical measures that dig deeper to identify the relative strengths and weaknesses of each county's economy and how various forces have affected the region's growth. It also presents the use of input-output models for each county to demonstrate how multiplier effects of key industry sectors have impacts that reach beyond a single industry or county.

Industry trends and contributions

The Big Bend region is generally recognized as a rural region rich in natural resources. Table 3 shows clearly how employment in the region is much more concentrated in the natural resource and manufacturing sectors compared to the statewide economy. While the farming, forestry, fishing and hunting, and resource extraction industries each make up less than 1% of Florida's private sector employment, their contributions to jobs in the Big Bend region are essential. The farming, forestry, fishing and support industries support between 7% and 17% of employment in the region. Notably, the manufacturing sector, which is much more important to Dixie and Taylor counties compared to the state economy, is largely dominated by forest products manufacturing and pulp and paper industries and accounts for 11% and 17% of private employment in the two counties, respectively.

While the region appears to have highly developed manufacturing and extractive industries based on its natural resources, the relatively low percentage of employment in the accommodation and food services sector suggests that the Big Bend has not seen significant growth of its tourism sector. According to the World Trade Organization, tourism is the largest industry in the world with an estimated nine percent of the world GDP and six percent of world exports (UNWTO 2014). The White House's Travel and Tourism report of 2014 acknowledged that travel and tourism is a major driver of the U.S. economy as well: the $1.5 trillion industry supports nearly 8 million American jobs. Recreation activities in national parks, wildlife refuges, forests, marine sanctuaries, lakes, and other federally managed lands and waters contributed well over $50 billion and nearly 880,000 jobs to the U.S. economy in 2012, the most recent year for which data is available. And within the tourism sector, sustainable tourism, especially nature-based and experiential tourism, has been one of the fastest growing segments of the tourism industry nationwide.

Table 3. Composition of private sector employment in Florida and the Big Bend, 2012

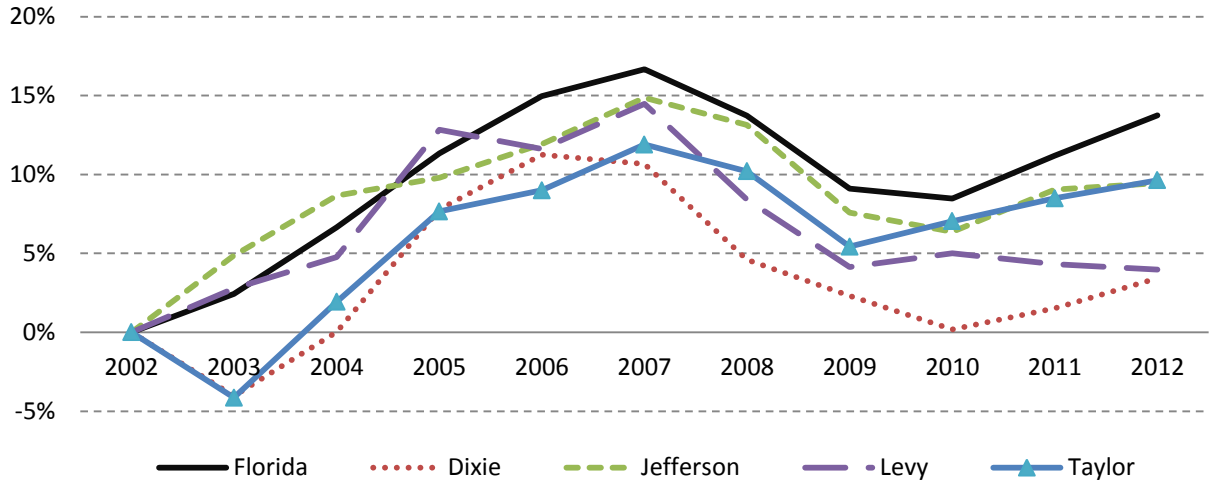
Industry Sector	Florida	Big Bend	Dixie County	Jefferson County	Levy County	Taylor County
Forestry	0.1%	2.4%	2.7%	1.1%	1.7%	3.7%
Farming	0.8%	6.4%	9.2%	13.3%	6.9%	1.0%
Commercial Fishing	0.1%	2.1%	4.7%	0.0%	1.8%	2.0%
Commercial hunting and trapping	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Support activities for agri. & forestry	0.5%	2.3%	0.5%	1.3%	4.8%	0.4%
Mining	0.3%	0.3%	0.2%	0.2%	0.0%	0.7%
Utilities	0.3%	0.6%	0.0%	1.1%	1.0%	0.2%
Construction	6.1%	10.1%	8.0%	8.9%	11.8%	9.4%
Durables mfg. (exc. wood products)	2.4%	3.3%	0.5%	0.4%	4.3%	4.8%
Wood products mfg.	0.1%	2.2%	10.4%	0.0%	0.3%	1.2%
Nondurables mfg. (exc. food and pulp & paper products mfg.)	0.8%	0.1%	0.0%	0.1%	0.1%	0.2%
Food product mfg.	0.4%	1.0%	0.0%	0.1%	0.4%	2.6%
Pulp and paper products	0.1%	2.5%	0.0%	0.0%	0.0%	8.4%
Wholesale Trade	3.9%	2.4%	2.4%	3.1%	2.5%	2.1%
Retail Trade	12.6%	13.4%	8.6%	9.5%	15.1%	15.3%
Transportation & warehousing	3.5%	6.2%	14.3%	9.4%	4.3%	2.9%
Publishing, broadcast and telecom	1.7%	0.7%	0.5%	0.7%	0.6%	0.8%
Finance, insurance and real estate	13.8%	4.4%	5.6%	4.0%	4.8%	3.4%
Professional, tech and mgt. services	17.7%	7.2%	5.6%	12.4%	7.0%	6.0%
Educational services	2.1%	1.6%	2.1%	2.4%	1.5%	1.1%
Health & social services	12.6%	8.5%	4.0%	8.6%	8.9%	10.4%
Arts, entertainment & recreation	3.3%	1.9%	0.5%	4.7%	2.1%	1.3%
Accommodations & food services	9.1%	6.9%	4.5%	6.4%	7.7%	7.3%
Other services	7.9%	13.7%	15.6%	12.6%	12.5%	14.7%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

* Sector employment data is not disclosed at the county level to protect the privacy of the business(es).
Source: IMPLAN input-output models.

Employment trends

Figure 12 shows the changes since 2001 in total employment and unemployment for the state of Florida and the Big Bend counties. The changes generally follow the broader economic cycles of expansion and recession in the national economy. Employment growth occurred in all counties from 2003 to 2007, and then began to decline at the start of the recession in 2008. Dixie County fared the worst, declining to 2002 employment levels at the bottom of the trough in 2010. The general trends in unemployment mirror those movements found in employment.

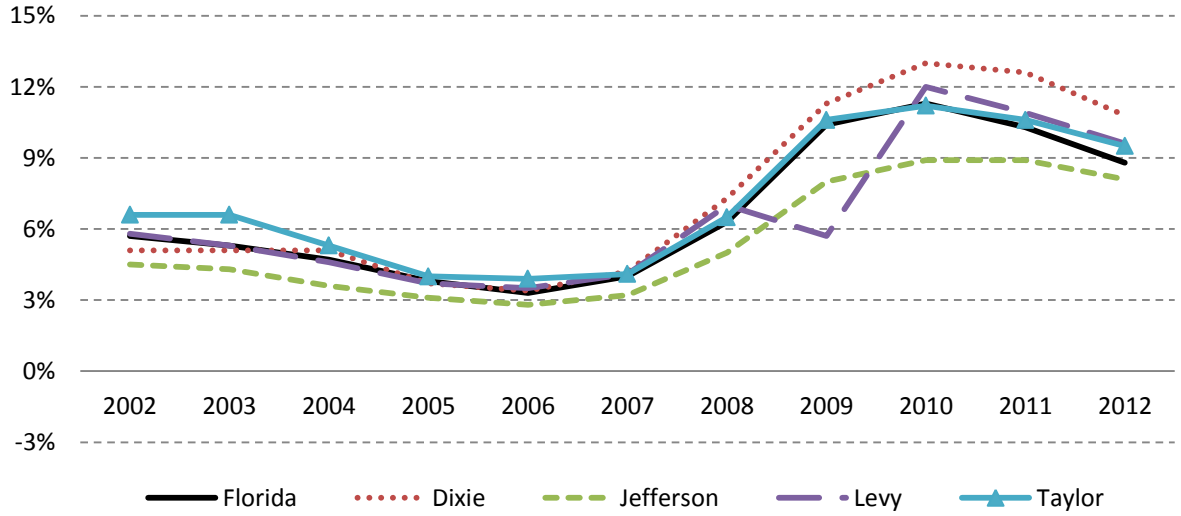
Figure 12. Percent change in total employment by state and county between 2002 to 2012



Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

The unemployment rate generally moves in the opposite direction of employment change. As the economy expands and the number of jobs increases, the unemployment rate declines, and during recessions when employment declines, the unemployment rate rises. This is clearly indicated by comparing Figure 12 with the chart in Figure 13.

Figure 13. Unemployment rate by state and county between 2002 to 2012



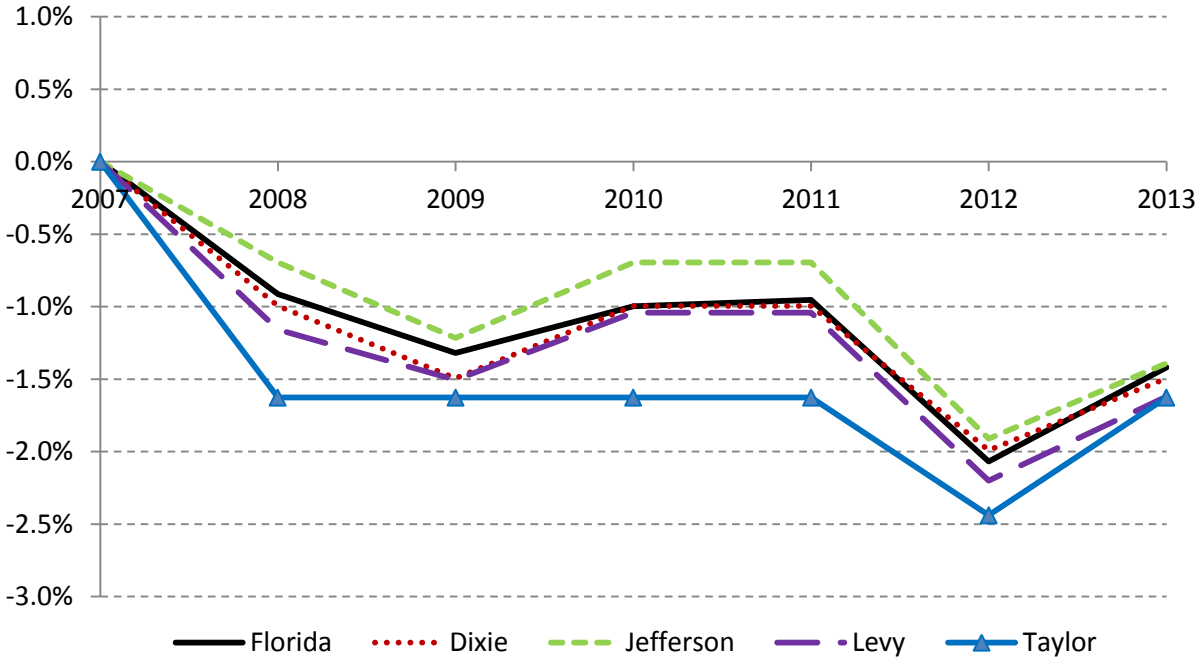
Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

Figures 14 through 16 look specifically at employment within three industry categories: 1) farm proprietors, 2) arts, entertainment, and recreation, 3) and accommodation and food services[2].

[2] County-level data are not available for detailed manufacturing industries that rely on natural resource inputs including wood products, and pulp and paper products.

In 2007, the U.S. Department of Agriculture changed its measure of farm proprietorship, creating a discontinuity with estimated numbers in prior years. For this reason we use only the years after 2007 to portray trends in the numbers of farm proprietors. Like other employment, farm employment dipped after 2007, but not as dramatically as total employment.

Figure 14. Percent change in farm proprietor employment between 2007 and 2013

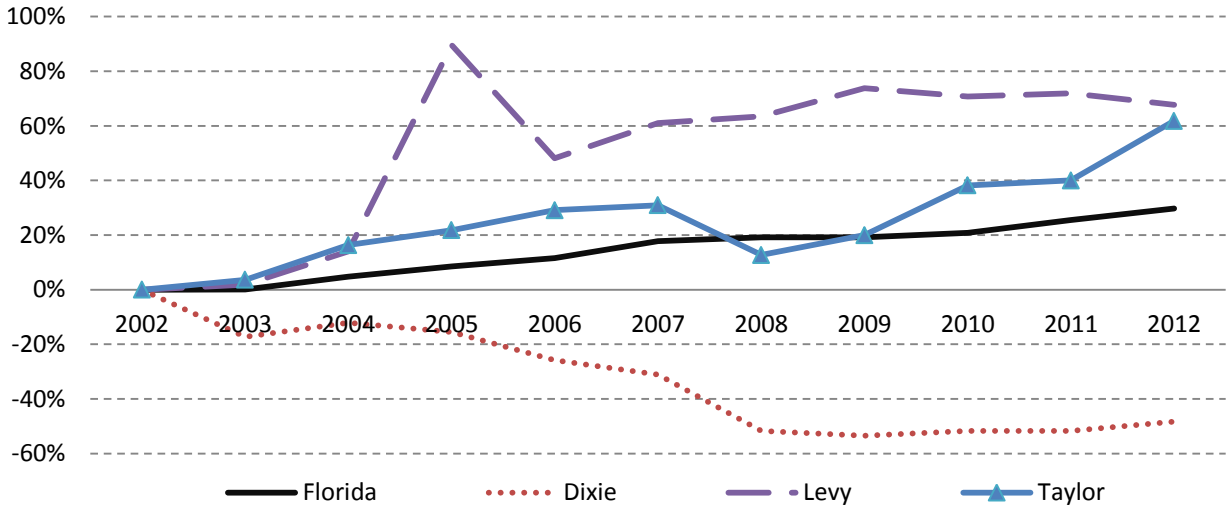


Note: Downward shift between 2007 and 2008 is caused by restructuring of the Agricultural Census in 2007 and is not reflective of a significant reduction in employment.

Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

Employment within the outdoor recreation and tourism sector is not tracked as an industry by government data sources. Instead, selected industry sectors are examined as proxies for this part of the economy. For example arts, entertainment, and recreation include nature parks, historical and cultural sites, and fishing/hunting guides, in addition to theaters, museums, and tourist attractions. Employment in this sector has been rising faster in Levy and Taylor counties than in the state of Florida, overall (Figure 15). Yet, the growth in this sector contributes only a small portion to the tourism industry of the Big Bend and does little to boost growth within the industry as a whole. Dixie County, however, has seen a substantial decline in employment in that sector. Data were not available for Jefferson County.

Figure 15. Percent change in arts, entertainment, and recreation employment between 2002 and 2012

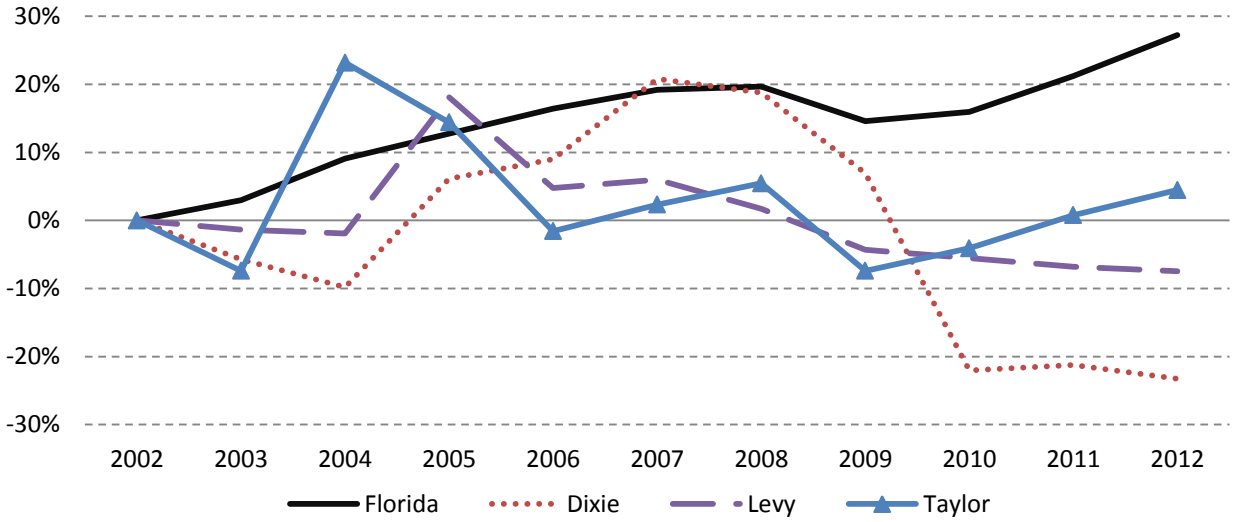


*Note: Jefferson County has been omitted due to insufficient data.

Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

The accommodations and food services industry is normally considered an additional barometer of tourism activity. Not surprisingly, the state of Florida has seen strong growth of this sector as it continues to expand its well-known tourism industry (Figure 16). The Big Bend region, however, has had little growth in this tourism sector with 2011 levels on par with 2002. Dixie County has seen a significant decline of employment in this sector. Discussions with local officials reveal that the factors precipitating this decline are unclear.

Figure 16. Percent change in accommodation and food services employment between 2002 and 2012

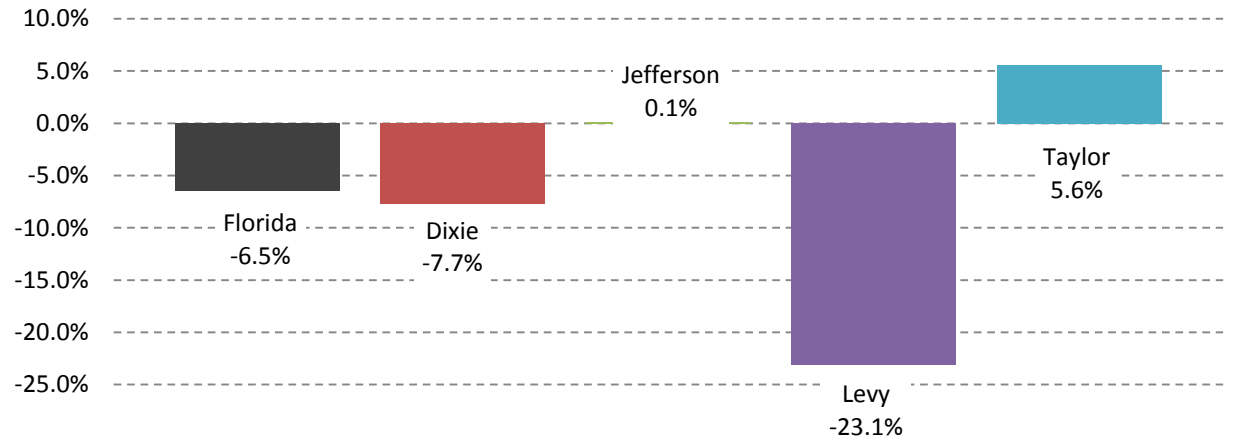


*Note: Jefferson County has been omitted due to insufficient data.

Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

Complete employment data for the forestry, fishing, and related activities sector is not available due to the suppression of values in some counties. Instead, we look at the number of establishments in this sector. Changes in the number of establishments suggest that Dixie and Levy counties have seen declines in this industry while Jefferson stayed constant and Taylor increased (Figure 17). Consolidation within the farm sector is one possible factor behind the contraction.

Figure 17. Percent change in the number of forestry, fishing and related establishments between 2007 and 2012



*Due to suppressed employment data, the number of establishments has been used in place of total jobs.

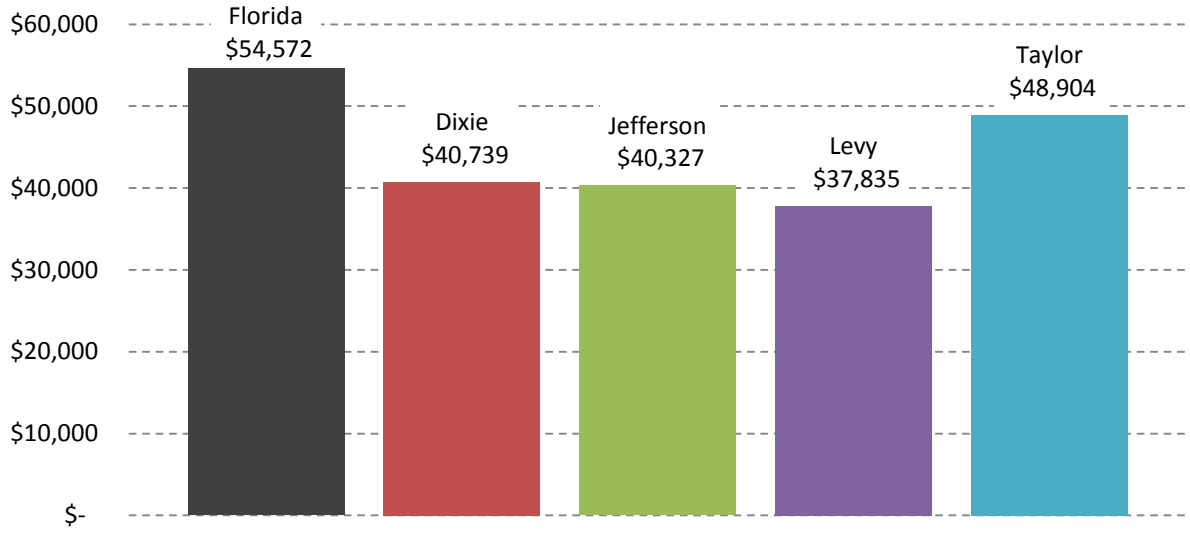
Source: Bureau of Economic Analysis, U.S. Census Bureau County business patterns, and Bureau of Labor Statistics

Compensation and wages

This section explores three separate but related economic measures: 1) compensation, 2) wages, and 3) per-capita income. Compensation includes the wages and salaries paid to employees as well as the value of benefits provided by employers. These benefits may include employer contributions for employee pension and insurance funds and for government social insurance. Conversely, wages and salaries do not include the benefits paid by employers. Compensation and wages relate specifically to the occupation or pay per job in the location where the individual is employed. Per-capita income on the other hand is a measure of economic prosperity across the general population in the area where the employee resides.

The rural Big Bend region has lower average compensation per job compared to Florida as a whole (Figure 18). Taylor County, however, has a higher compensation per job than the other three counties. This is likely attributable to the dominant position of the pulp and paper industry in the county economy which offers relatively higher paying wages.

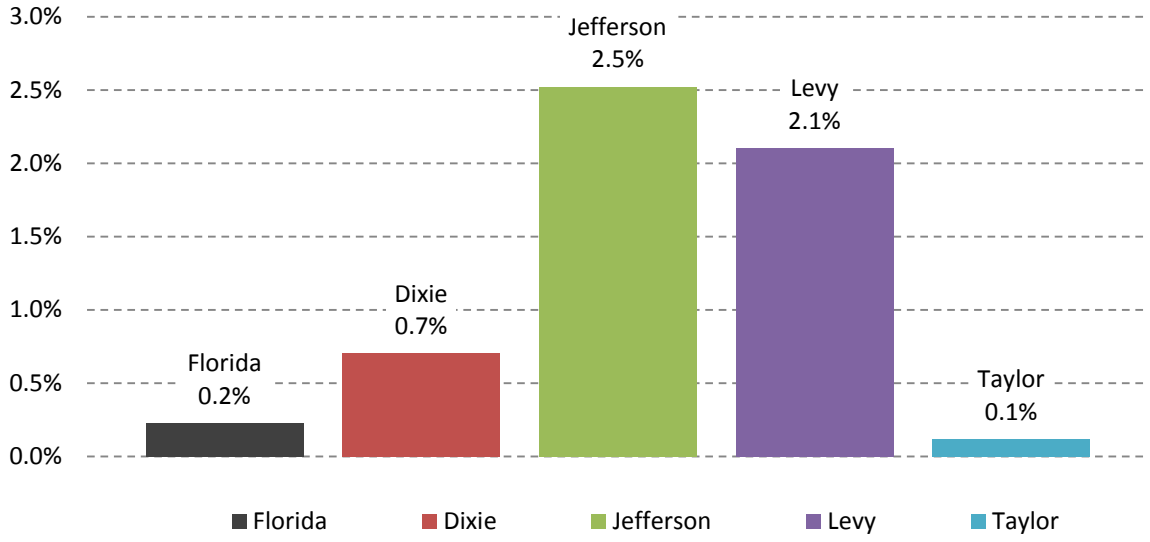
Figure 18. Average compensation per job in 2012



Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

The contribution of farm income toward total compensation is a figure that represents farm income's importance to the overall economy (Figure 19). Compared to the rest of Florida, Jefferson and Levy counties have a much higher proportion of total work compensation originating in the farm sector. In Levy County, the farm sector includes a significant segment of aquaculture activity (hard clam growing operations) that does not exist elsewhere in the region.

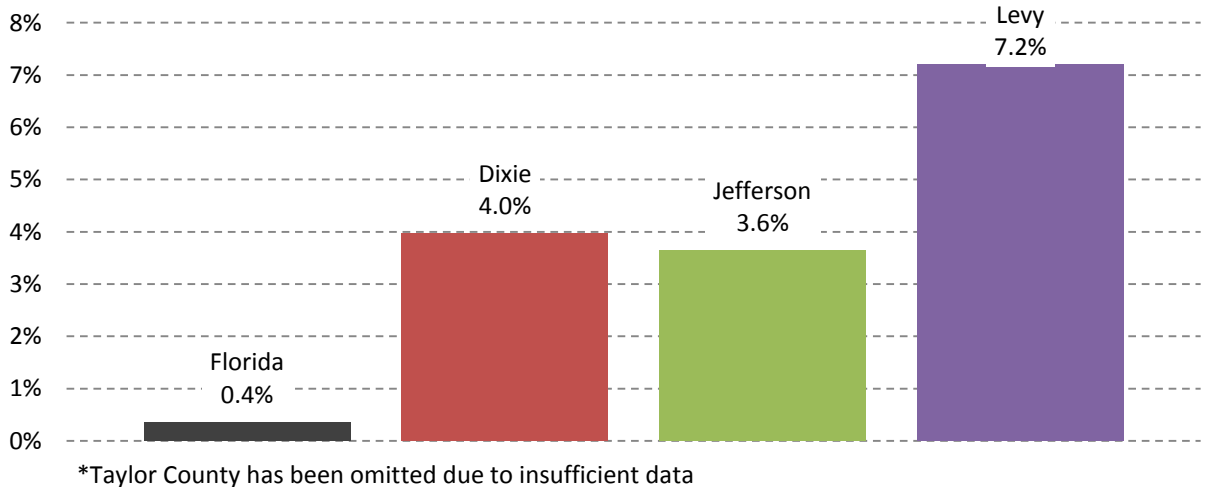
Figure 19. Contribution of farm compensation toward total compensation in 2012



Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

Similar to farm-based income, the Big Bend region has a higher proportion of its total compensation coming from forestry, fishing, and related activities compared to the statewide economy (Figure 20). Note that because of the possibility of disclosure, some data have been omitted per Federal law. In this case, Taylor County's contribution from forestry, fishing, and related activities has been omitted from the chart.

Figure 20. Contribution of forestry, fishing, and related activities toward total compensation in 2012*.

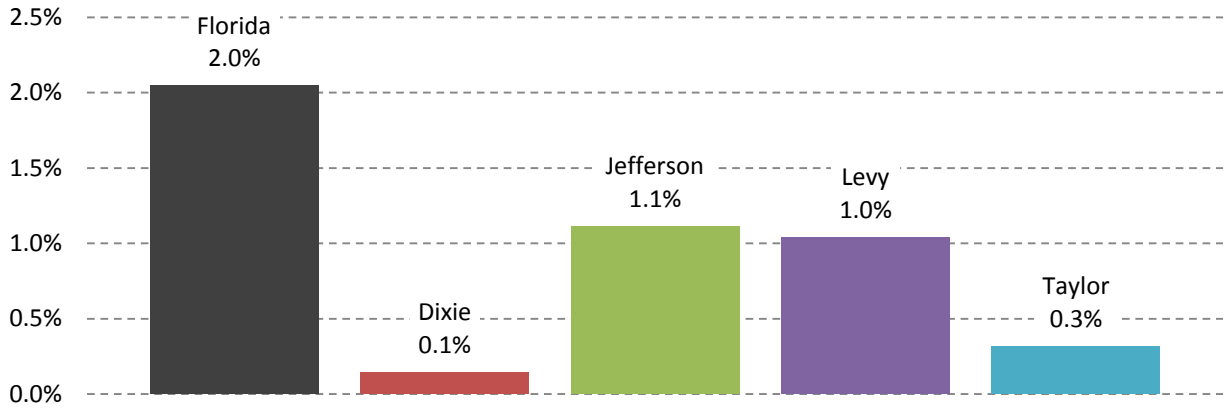


Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey
**The fishing sector reflects commercial operations excluding recreational fishing and aquaculture.*

We examine the arts, entertainment and recreation sector and the accommodation and food services sector as proxies for outdoor recreation and tourism activity, respectively. Under this scenario, only Jefferson County has more than one-half of the statewide level of compensation

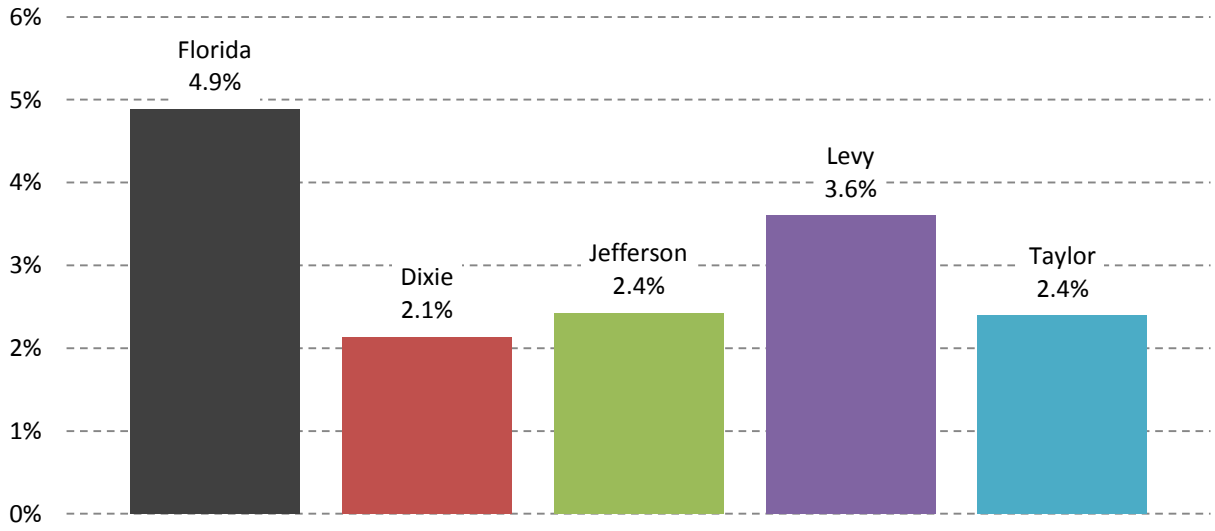
in the outdoor recreation sector (Figure 21). Only Levy County has a relative level of tourism activity in the accommodation and food services sector that exceeds one-half of the statewide level (Figure 22). This suggests that while the state of Florida is widely recognized for its high reliance on tourism for economic growth, tourism remains a smaller part of the Big Bend economy compared to the rest of the state.

Figure 21. Contribution of Arts, Entertainment, and Recreation toward total compensation in 2012



Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

Figure 22. Contribution of Accommodation and Food Services toward total compensation in 2012

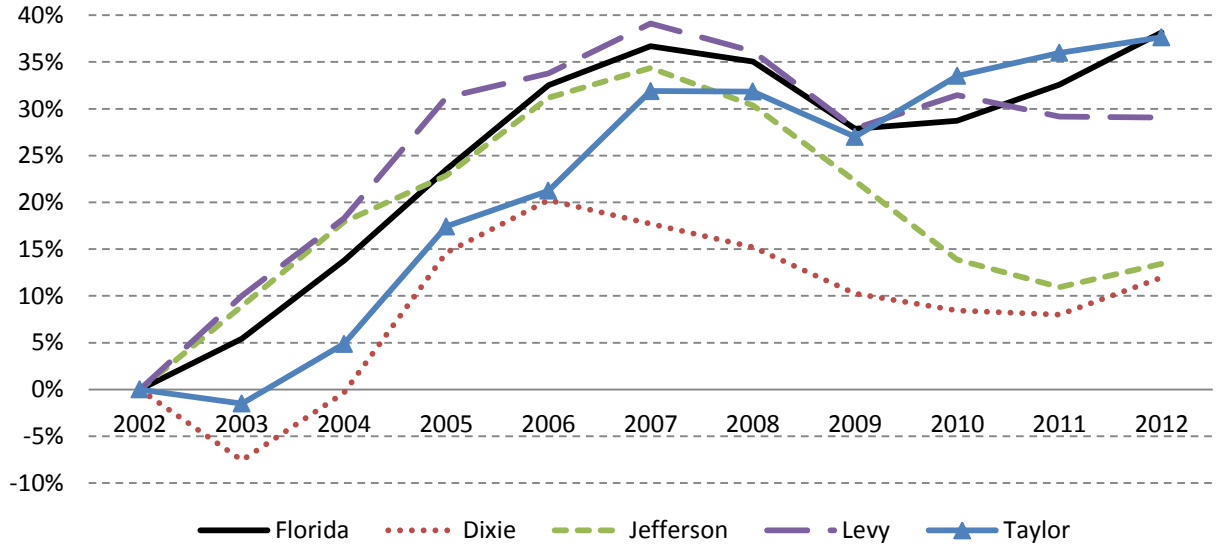


Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

Figure 23 displays the changes in wages and salaries for the region from 2002 through 2012. Much like the employment charts in Figures 12 and 13, there is a dip during the recessionary period following 2008. From there, each county rebounds differently, with Jefferson County seeing total wages in 2012 that are 15% below the 2007 economic peak. Taylor has rebounded

most strongly with Levy and Dixie still down about 8% or so. These numbers are not inflation adjusted.

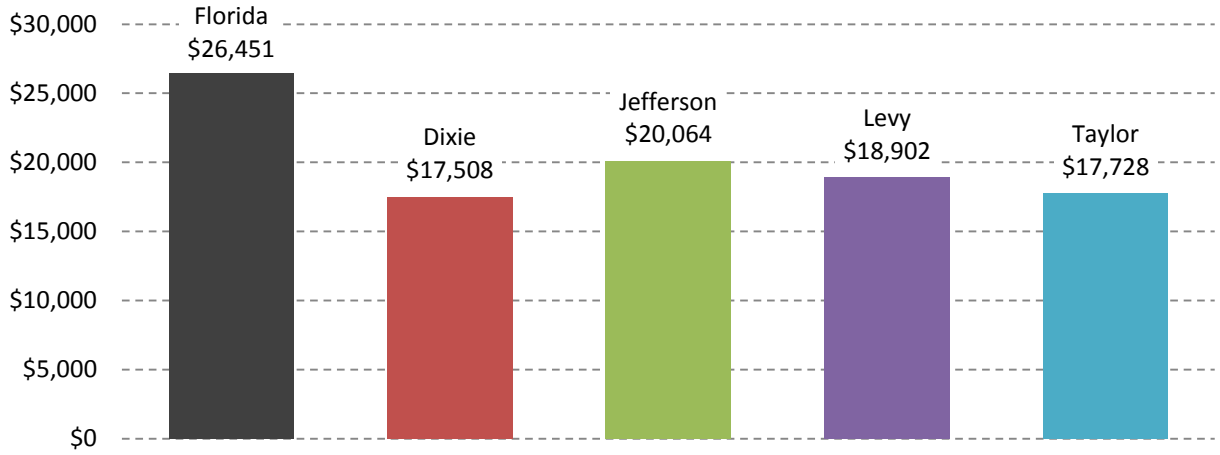
Figure 23. Percent change in wages and salaries non-farm employment between 2002 and 2012 (not adjusted for inflation)



Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

Per-capita income can be interpreted as a measure of economic prosperity. The average per-capita income for each county is less than the average for the state (Figure 24). In fact, the state average is between 1.3 and 1.5 times higher than the average of each individual county. Jefferson County has the highest per-capita income at $20,064.

Figure 24. Per-capita income in 2012

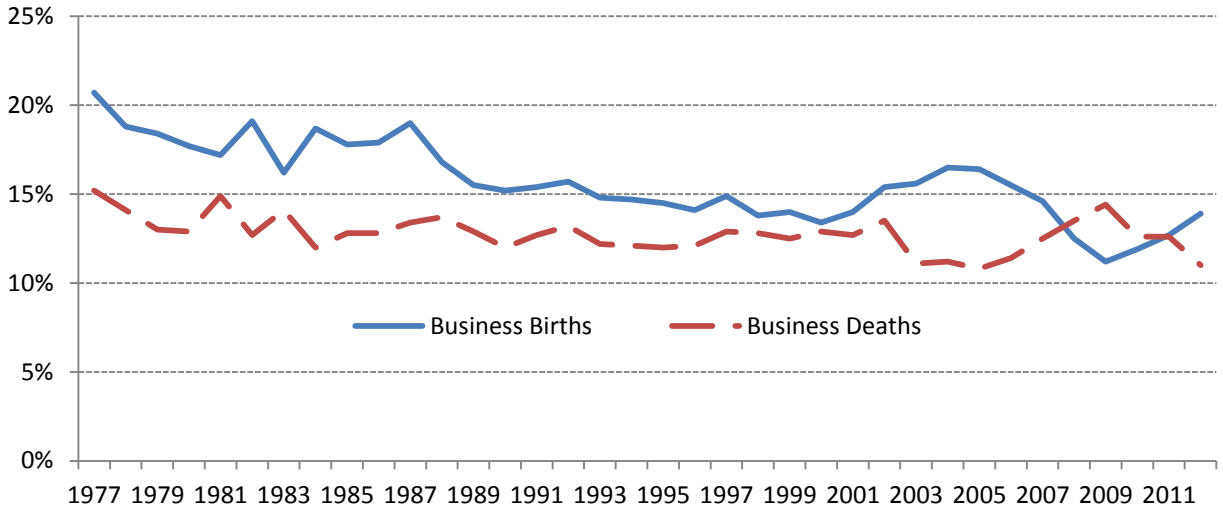


Source: Bureau of Economic Analysis and U.S. Census 2012 American Community Survey

Entrepreneurial activity

It has been long believed that an expansionary business environment is characterized by high dynamic activity – lots of what are called business "births and deaths" – and this is taken as evidence of a healthy entrepreneurial environment. We do not have data available to measure business births and deaths for each county. However, Figure 25 shows that dynamic business activity in Florida statewide has been in a long-term decline. This is typical of trends across the country with more recent national trends suggesting an increase in business births over deaths.

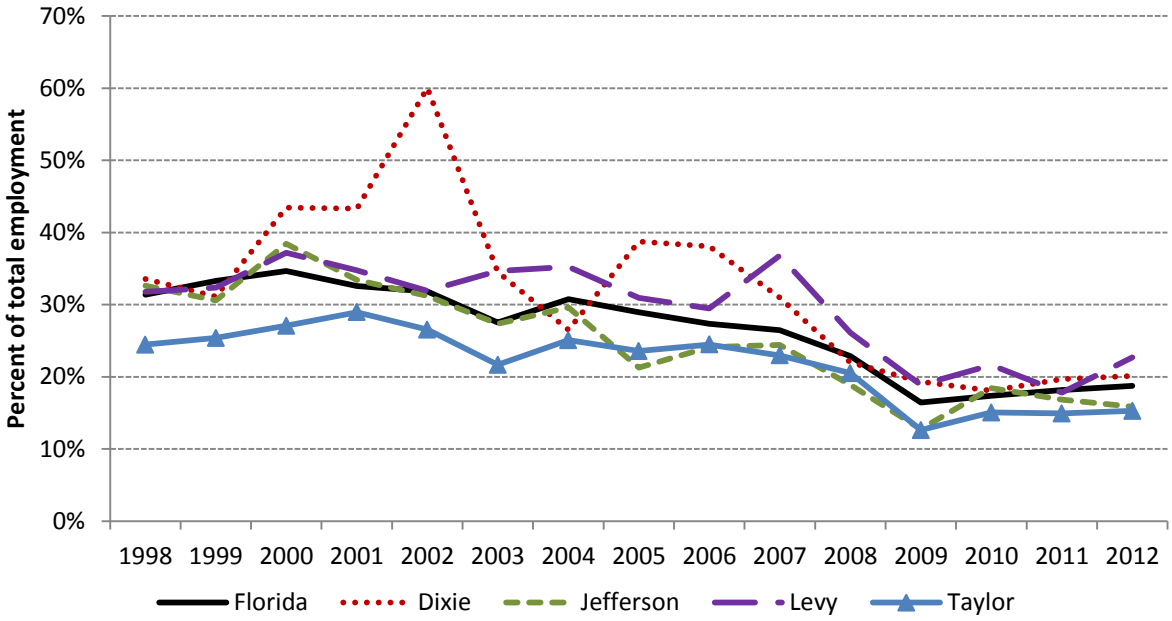
Figure 25. Entrepreneurial activity in Florida between 1977 and 2012



Source: U.S. Census Bureau Longitudinal employer-household dynamics

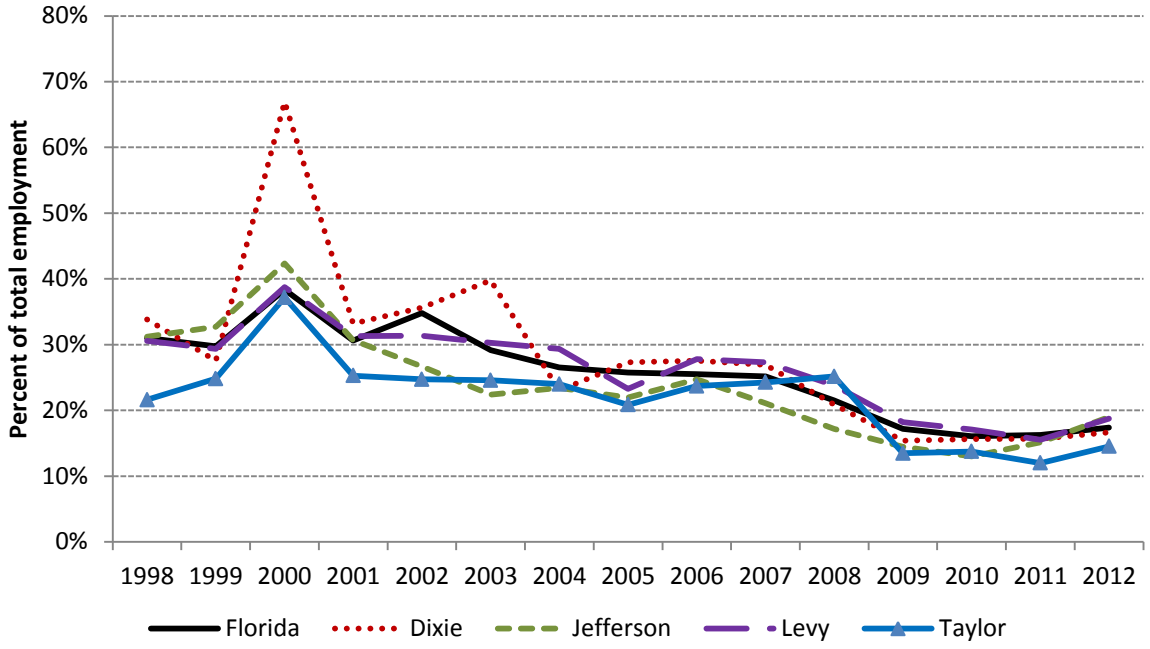
While we cannot measure establishment births and deaths at the county level, we have data for employment dynamics that show the numbers of job hires and job separations in each county. Figures 26 and 27 show the same long-term decline in employment dynamics (new hires and job separations) that was evident in the declining dynamism of business births and deaths.

Figure 26. New job hires by state and county between 1998 and 2012



Source: Bureau of Labor Statistics

Figure 27. Job separations by state and county between 1998 and 2012

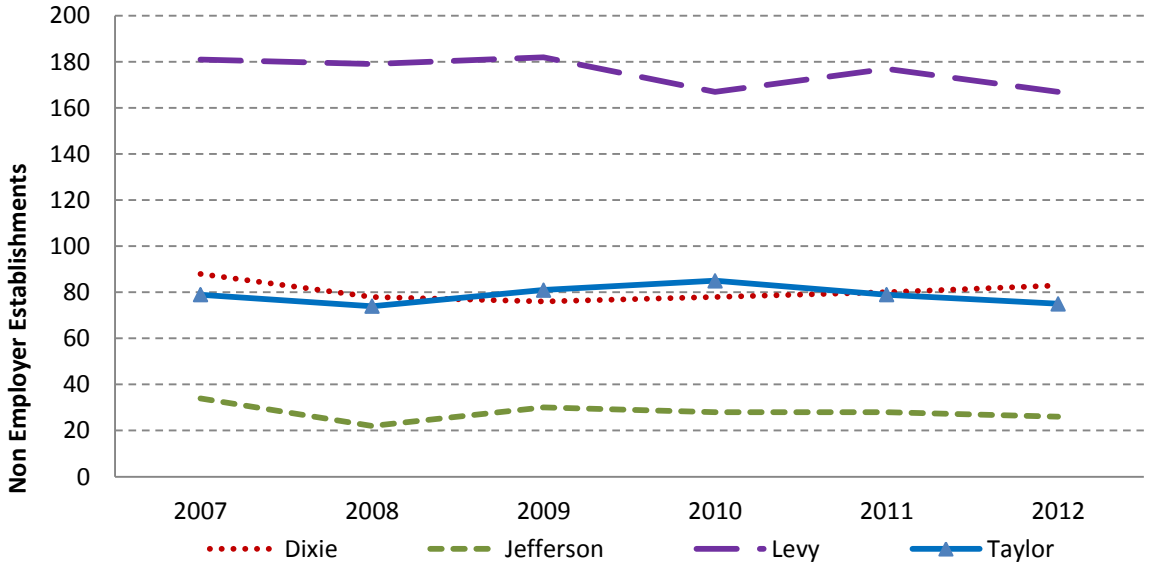


Source: Bureau of Labor Statistics

The number of very small businesses (sole proprietor businesses that have no employees) is another indicator of entrepreneurship in each of the four counties. This data captures those people who are working for themselves. Figure 28 shows the number of non-employer businesses in the agriculture, forestry, and fishing sector since 2007. Figure 29 shows the

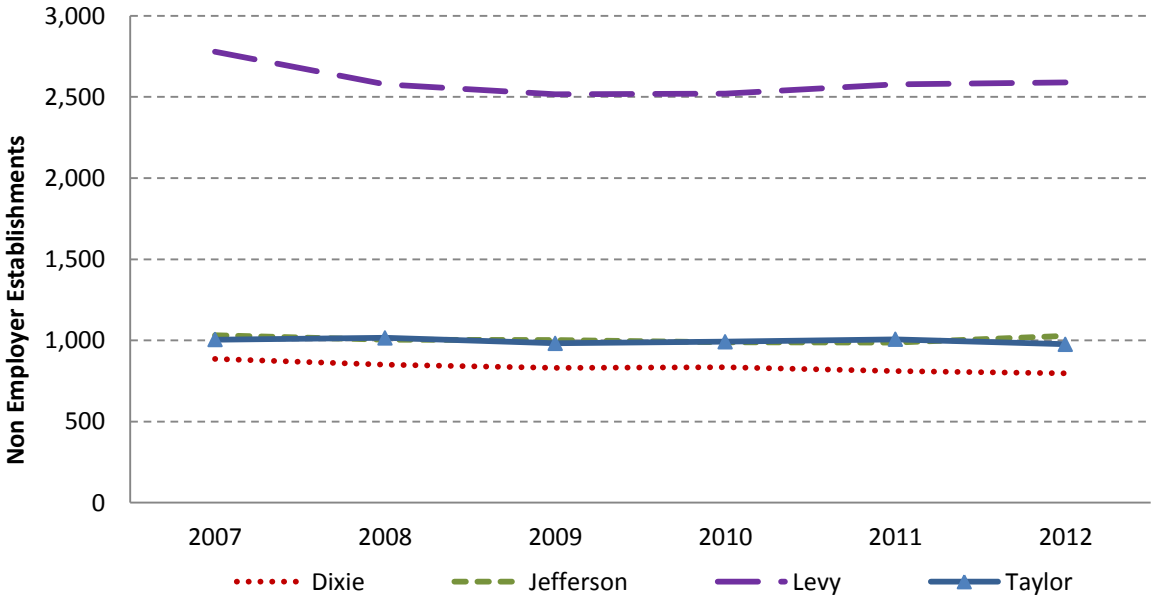
number of non-employer businesses across all industry types for each of the counties. The overall trend is stagnant growth in the number of non-employers' establishments over the period.

Figure 28. Forestry, fishing, and hunting non-employer business growth between 2007 and 2012



Source: U.S. Census Bureau Non-employer statistics

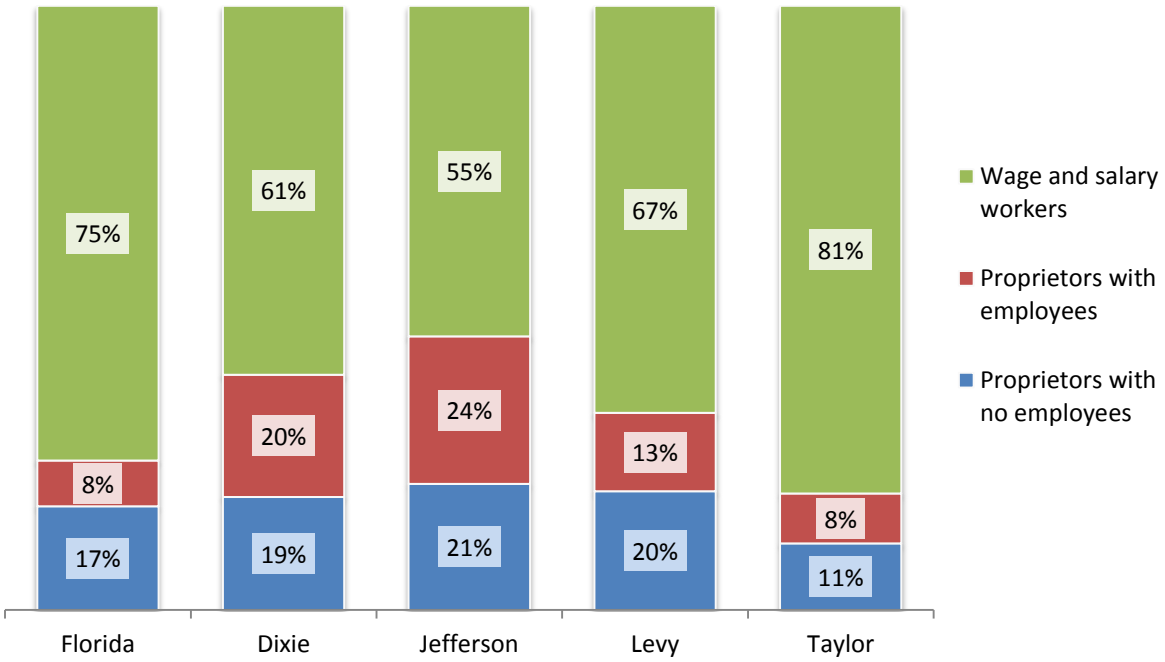
Figure 29. All non-employer business growth between 2007 and 2012



Source: U.S. Census Bureau Non-employer statistics

Figure 30 shows the distribution of total employment across three groups of people: 1) business proprietors with no other employees (that is, non-employers), 2) business proprietors who have employees, and, 3) wage and salary workers who work for a proprietorship, corporation or other form of business. In Florida, proprietors who have a business with no employees make up 17% of all employed people, while proprietors who have employees make up the 8% of the workforce (not counting their employees). The balance is made up of hired people who work for a proprietor or a corporation, or wage and salary workers. In the Big Bend, the percent of people who have their own small business (i.e., proprietors) ranges from 19% in Taylor County to 45% in Jefferson County. With the exception of Taylor County, these local economies are relatively more reliant on entrepreneurial businesses for employment than Florida, overall. Especially in Dixie and Jefferson counties, the high percentage likely reflects the large number of small farms located there that are typically organized as proprietorships. The relatively large proportion of wage and salary workers in Taylor County is likely reflective of the importance of the larger manufacturing industries in the county.

Figure 30. Percent contribution of non-employer proprietors, employment proprietors, and employees to total employment for the state and each county in 2012



Source: U.S. Census Bureau Non-employer statistics and Bureau of Economic Analysis

Economic drivers and impacts

The current status of a regional economy is the result of historical forces that have shaped its development over time. Some factors are based in past development policies, while others reflect the inherent resources on which industries have been built. Still others are the result of

competitive factors that favor some industries over others. This section analyzes regional economic data to help identify the relative strengths of each county, the broader forces that have been at work in the area's recent economic history, and how changes in key industries would ripple throughout the county economy.

Location quotients

A Location Quotient (LQ) is a relative measure that reflects the concentration of a given industry within a local area in comparison to a larger region. It is calculated as the industry's share of employment within the local area divided by the industry's share of employment within the larger region. In this case the local area is either the Big Bend region or each individual county and the larger region is defined as the state of Florida.

An industry with a location quotient of more than 1.0 indicates that the industry is relatively more important to the local county economy than the same industry is to the statewide economy overall. In other words, an industry with a high LQ has a greater presence in an area than might be expected given the structure of the state's overall economy. As a result, such industries are often export-oriented and bring new money into the local region. A LQ of 1.0 means an industry is of comparable importance in both the local and statewide economies. A LQ less than 1.0 indicates that the industry plays a relatively less important role in the local economy than it does in the statewide economy.

The values in Table 4 are color-coded to highlight key sectors that are relatively more important to the Big Bend economy than they are to the state. With an average LQ of approximately 10, the forestry, fishing, and agricultural support sector is ten times more important to the Big Bend region than the state economy overall. The farming sector is also 10 times as concentrated locally. In general, the natural resource-based sectors are key industries in all of the individual counties, although there is some degree of variation across the counties for specific industries. For example, farming is especially important to Jefferson and Levy counties; the forestry, fishing, and agricultural support sector is almost twice as important in Dixie and Levy counties as it is in either Jefferson or Taylor counties. Transportation, including trucking firms that move raw timber and other materials, have LQs greater than 1.0 in three of the four counties. Finally, it is worth noting that the manufacturing industries are dominated by natural resource-related businesses in both Dixie (wood products) and Taylor (pulp and paper) counties where manufacturing is much more important to the local economy than it is in the other counties.

Table 4. Industry location quotients in the Big Bend

Industry	Big Bend Region	Dixie	Jefferson	Levy	Taylor
Farming	10.2	7.2	22.2	12.1	2.3
Forestry, fishing, hunting, and agri. support	9.9	11.6	6.8	12.3	6.9
Mining, quarrying, and oil and gas extraction	7.5	14.8	10.9	5.7	4.6
Manufacturing	3.1	3.5	0.3	1.7	6.4
Construction	1.7	1.2	1.5	2.0	1.9
Other services (except public administration)	1.2	1.4	1.6	1.1	1.1
Retail trade	1.2	1.0	0.9	1.3	1.4
Transportation and warehousing	0.8	1.4	2.1	-	1.1
Accommodation and food services	0.7	0.6	0.6	0.8	0.9
Arts, entertainment, and recreation	0.6	0.3	0.8	0.8	0.5
Real estate and rental and leasing	0.6	0.6	0.7	0.7	0.4
Wholesale trade	0.6	0.9	-	0.7	0.6
Professional, scientific, and technical services	0.6	0.4	0.9	0.5	0.5
Finance and insurance	0.5	0.4	0.6	0.6	0.5
Information	0.5	0.4	0.4	0.3	0.8
Health care and social assistance	0.4	0.5	-	0.8	-
Utilities	0.4	-	-	-	1.4
Educational services	0.4	0.7	-	0.6	-
Administrative and waste mgmt. services	0.3	0.6	0.8	-	0.4
Management of companies and enterprises	0.2	0.2	-	-	0.7

Source: Data derived from U.S. Census Bureau County business patterns and Headwater Economics.

Shift share analysis

"Shift-share is similar to location quotient in that it highlights the uniqueness of a regional economy, but it does so in terms of job growth rather than total jobs in an industry. Industries with a high regional competitive effect highlight the region's competitive advantages or disadvantages. Shift-share does not indicate why these industries are competitive—that is the job of analysts who have knowledge of local conditions. Shift-share merely shows the sectors in which the region is out-competing or under-competing the nation." (Economic Modeling Specialist International)

Shift-share analysis is a technique that describes the changes within a local economy as the result of state, industry, and regional factors. The information is useful to better understand how the factors have driven changes over a period of time. The factors are described in more detail as follows:

1) Statewide Growth Component: the effect of overall growth in the broader statewide economy.
2) Industry Mix Component: the mix of faster-growing and slower-growing industries within the Big Bend region versus the average growth rate for Florida.
3) Competitive Share Component: the rate at which an industry is growing in the Big Bend region compared to the growth rate of that same industry in the statewide economy.

The Statewide Growth Component reflects the growth seen at the local level that can be attributed to overall growth in the state's economy, and thus reflects broader economic trends. Under the axiom that "a rising tide lifts all boats", the assumption in this component is that growth (or decline) in the broader statewide economy will have a comparable effect on the local economy. The extent to which change in a local economy differs from the statewide economy is accounted for by other components of the shift-share analysis.

The Industry Mix Component is analogous to a portfolio view of the local economy. If a county has a high concentration of industries growing faster or more slowly compared to the state, then its overall growth or decline will be either positively or negatively affected. An economy that is highly concentrated in a few industries is susceptible to boom-and-bust cycles depending on the fortunes of a few key industries. Alternatively, a local economy that is highly diversified may not experience the same rapid growth overall when one industry segment is booming; however, it is likely to provide a more stable growth rate over time.

The Competitive Share Component is based on the competitiveness of individual industries in the local economy. Industries that have a local competitive advantage are more likely to contribute to the overall growth of the local economy. Conversely, the presence of local industries that are no longer competitive will create a drag on the local economy and hinder its growth.

Table 5 through Table 8 show the results of a shift-share analysis for each county within the Big Bend region. Not all data for each industry is available as some of it is suppressed for privacy reasons. In cases where industry data is suppressed, those industries have been omitted from the analysis. The discussion below explores the results of the shift share analysis for Dixie County. A similar interpretation applies to each of the county results.

First, we discuss an industry-specific scenario of the results for Dixie County to illustrate the calculations of shift share analysis as reported in Table 5.

Farming sector	2001	246	*Employment in the farming sector of*
employment in:	2013	225	*Dixie County contracted by 21 jobs over*
	Net change	-21	*the period.*

Statewide average employment growth (A)	19.3%	*If employment in the farming sector in Dixie County had grown at the same rate as overall employment, the sector has the potential to experience an expansion force of 47 jobs.*
Industry-specific statewide employment growth (B)	-12.5%	*Statewide, the farming sector employment fell by 12.5%. The Industry Mix Component is calculated as B-A, or -31.8%, estimating a potential contraction force of 78 jobs.*
Industry-specific local employment growth (C)	-8.5%	*Countywide, the farming industry fell by only 8.5%. In other words, it performed better than the industry at the state level. Competitive share component is calculated as B-C, or 4.0%, generating a potential expansion force of 10 jobs.*

The Shift-Share Component values in Tables 5 through 8 are best interpreted as an expansion or contraction force influencing the actual levels of employment. They do not represent actual jobs gained or lost; rather they are relative measures acting on employment conditions with the county.

Taking into consideration changes across all industries in the county, the bottom line shows that total employment in Dixie County increased from 3,252 jobs in 2001 to 3,495 jobs in 2013 for a net increase of 243 jobs. This net change is the result of several forces. If county employment had simply grown at the same rate as the state, overall, then it would have added 626 jobs (Statewide Growth Component). That it actually added only about one-third as many jobs is the result of other industry- and county-specific factors that had a negative effect on job growth.

The mix of industries in the county, that is, the Industry Mix Component, had the largest negative influence accounting for 323 fewer jobs than the county would have had otherwise One example is the higher concentration of manufacturing industries in Dixie County compared to the state. Manufacturing in Florida is an industry that is growing more slowly than the average industry in the state and the county's higher concentration of manufacturing is creating a drag on overall growth (i.e., Dixie County has high concentrations of slow-growing industries).

The bottom line of the Competitive Share Component also is negative (-60 jobs) suggesting that the industries in Dixie County, overall, have not grown as fast as the same industries statewide. As with the other components of shift share, the competitive effect varies across industries. Although the concentration of manufacturing has a negative effect on the local economy because the average manufacturing sector in Florida is declining, the manufacturing sector in

Dixie County is actually growing faster (more competitive) than the manufacturing sector statewide. This competitive advantage for manufacturing is a positive force for job growth.

The pattern is roughly the same in each of the Big Bend counties. The rate of total job growth in each county has lagged the statewide economy resulting in fewer jobs than if the county had simply grown at the statewide rate. In each case, the slow growth is largely due to an over-concentration of slow-growing industries particularly in the natural resource-based sectors. On the plus side, it is those same natural resource-based industries that have been a positive force for job growth in the region. In most cases, the natural resource-based industries have grown faster in the Big Bend than they did statewide, suggesting that the region offers a competitive advantage for those businesses. That competitive advantage helped to offset the typical slow growth that one would otherwise expect from those industries and partially mitigated the negative aspects of the industry mix.

Table 5. Employment shift share analysis for Dixie County between 2001 and 2013

Industry Category	Employment 2001	SHIFT SHARE COMPONENTS				Employment 2013
		Statewide Growth Component	Industry Mix Component	Competitive Share Component	Net Change	
Farming (including aquaculture)	246	47	(78)	10	(21)	225
Forestry, fishing, hunting, and agriculture support	271	52	(71)	6	(13)	258
Mining, quarrying, and oil and gas extraction	56	11	49	37	97	153
Utilities*	na	na	na	na	na	na
Construction	493	95	(142)	(219)	(266)	227
Manufacturing	472	91	(190)	98	(1)	471
Wholesale trade	109	21	(15)	6	12	121
Retail trade	374	72	(38)	32	66	440
Transportation and warehousing	165	32	(3)	(18)	11	176
Information	21	4	(8)	6	2	23
Finance and insurance	38	7	9	40	56	94
Real estate and rental and leasing	140	27	62	(77)	12	152
Professional, scientific, and technical services	79	15	11	12	38	117
Management of companies and enterprises	0	0	0	9	9	9
Administrative and support and waste mgt.	67	13	(14)	110	109	176
Educational services	5	1	2	44	47	52
Health care and social assistance	137	26	28	9	64	201
Arts, entertainment, and recreation	55	11	8	(33)	(15)	40
Accommodation and food services	222	43	35	(109)	(31)	191
Other services (except public administration)	302	58	32	(23)	67	369
Totals	**3,252**	***626***	***-323***	***-60***	**243**	***3,495***

* These sectors had undisclosed data to protect the privacy of businesses.

Source: U.S. Census Bureau County business patterns

Table 6. Employment shift share analysis for Jefferson County between 2001 and 2013

Industry Category	Employment 2001	SHIFT SHARE				Employment 2013
		Statewide Growth Component	Industry Mix Component	Competitive Share Component	Net Change	
Farming (including aquaculture)	714	138	(227)	75	(14)	700
Forestry, fishing, hunting, and agriculture support	259	50	(68)	(87)	(105)	154
Mining, quarrying, and oil and gas extraction	5	1	4	104	109	114
Utilities*	na	na	na	na	na	na
Construction	314	60	(90)	12	(18)	296
Manufacturing	100	19	(40)	(39)	(60)	40
Wholesale trade*	na	na	na	na	na	na
Retail trade	420	81	(43)	(49)	(11)	409
Transportation and warehousing	165	32	(3)	67	96	261
Information	45	9	(18)	(11)	(20)	25
Finance and insurance	200	39	48	(133)	(47)	153
Real estate and rental and leasing	88	17	39	44	100	188
Professional, scientific, and technical services	205	39	28	(42)	25	230
Management of companies and enterprises	na	na	na	na	na	na
Administrative and support and waste mgt.	167	32	(34)	80	78	245
Educational services*	na	na	na	na	na	na
Health care and social assistance*	na	na	na	na	na	na
Arts, entertainment, and recreation	127	24	18	(76)	(33)	94
Accommodation and food services	131	25	21	23	69	200
Other services (except public administration)	290	56	31	46	133	423
Totals	3,230	***622***	***-336***	***16***	***302***	***3,532***

* These sectors had undisclosed data to protect the privacy of businesses.

Source: U.S. Census Bureau County business patterns

Table 7. Employment shift share analysis for Levy County between 2001 and 2013

Industry Category	Employment 2001	SHIFT SHARE				Employment 2013
		Statewide Growth Component	Industry Mix Component	Competitive Share Component	Net Change	
Farming (including aquaculture)	1,208	233	(384)	55	(96)	1,112
Forestry, fishing, hunting, and agriculture support	547	105	(144)	300	261	808
Mining, quarrying, and oil and gas extraction	139	27	122	(114)	35	174
Utilities*	na	na	na	na	na	na
Construction	1,106	213	(318)	131	26	1,132
Manufacturing	628	121	(252)	168	37	665
Wholesale trade	326	63	(44)	(79)	(60)	266
Retail trade	1,749	337	(180)	(236)	(79)	1,670
Transportation and warehousing*	na	na	na	na	na	na
Information	110	21	(44)	(32)	(55)	55
Finance and insurance	356	69	85	(113)	40	396
Real estate and rental and leasing	483	93	212	(290)	15	498
Professional, scientific, and technical services	369	71	50	(88)	33	402
Management of companies and enterprises*	na	na	na	na	na	na
Administrative and support and waste mgt.*	na	na	na	na	na	na
Educational services	40	8	19	65	92	132
Health care and social assistance	787	152	162	(43)	270	1,057
Arts, entertainment, and recreation	177	34	25	32	91	268
Accommodation and food services	815	157	128	(333)	(48)	767
Other services (except public administration)	729	140	77	(59)	159	888
Totals	9,569	***1,843***	***-485***	***-638***	***721***	***10,290***

* These sectors had undisclosed data to protect the privacy of businesses.

Source: U.S. Census Bureau County business patterns

Table 8. Employment shift share analysis for Taylor County between 2001 and 2013

Industry Category	Employment 2001	SHIFT SHARE				Employment 2013
		Statewide Growth Component	Industry Mix Component	Competitive Share Component	Net Change	
Farming (including aquaculture)	114	22	(36)	36	22	136
Forestry, fishing, hunting, and agriculture support	266	51	(70)	42	23	289
Mining, quarrying, and oil and gas extraction	69	13	61	(53)	21	90
Utilities	27	0	0	0	0	0
Construction	611	118	(176)	140	82	693
Manufacturing	1,669	322	(670)	290	(59)	1,610
Wholesale trade	214	41	(29)	(78)	(65)	149
Retail trade	849	164	(87)	191	267	1,116
Transportation and warehousing	104	20	(2)	129	147	251
Information	57	11	(23)	56	44	101
Finance and insurance	183	35	43	(50)	29	212
Real estate and rental and leasing	132	25	58	(25)	58	190
Professional, scientific, and technical services	189	36	26	12	74	263
Management of companies and enterprises	23	4	11	16	32	55
Administrative and support and waste mgt.	222	43	(45)	13	11	233
Educational services*	na	na	na	na	na	na
Health care and social assistance*	na	na	na	na	na	na
Arts, entertainment, and recreation	56	11	8	25	44	100
Accommodation and food services	492	95	77	(121)	51	543
Other services (except public administration)	471	91	50	(86)	55	526
Totals	5,748	***1,107***	***-814***	***539***	***833***	***6,581***

* These sectors had undisclosed data to protect the privacy of businesses.

Source: U.S. Census Bureau County business patterns

Trade patterns

The flow of dollars in and out of a region has an important influence of long-term growth. Exports, in particular, bring in new dollars that help to expand the total size of an economy creating opportunities for job growth and higher incomes. Exports can include both the sale of physical goods beyond the border of the county as well as the new dollars that come from tourists who visit the area and spend locally. Although not often viewed as an export industry, tourism functions economically in the same way as a traditional export industry by "exporting" the local experience to people who visit a county. Likewise, tourism functions as an import when local residents leave the county to consume entertainment or recreation activities elsewhere.

Tables 9 through 13 depict the trade patterns for the Big Bend region and each of the counties in full detail for 2012 based on estimates produced by IMPLAN economic input-output models. As shown in Table 9, the Big Bend region is a net importer of goods, indicating economic dependence on other areas for essentials. However, some key industries are net exporters of goods beyond the region and bring in new dollars. The natural resource industries of forestry and farming, in particular, are sources of regional exports. In the manufacturing sector, both wood products manufacturing and the pulp and paper industries are net exporters, with the pulp and paper industry bringing in approximately one-half billion dollars annually.

The largest net exporters in the Big Bend include:

- Dixie County
  - Wood products manufacturing
  - Transportation
  - Forestry
  - Crop farming
  - Livestock
  - Mining
- Jefferson County
  - Crop farming
  - Utilities
  - Other services
  - Transportation
  - Livestock
  - Forestry
- Levy County
  - Utilities
  - Crop farming
  - Forestry
  - Other services
  - Livestock
  - Government
- Taylor County
  - Pulp and paper products
  - Food product manufacturing
  - Forestry
  - Durables manufacturing
  - Mining
  - Wood products manufacturing

Table 9. Trade patterns in the Big Bend Region in 2012

	Big Bend Region		
Industry Sector	**Exports**	**Imports**	**Net Trade**
Total	**$1,650,920,525**	**$2,559,224,344**	**($908,303,818)**
Forestry	$63,828,950	$691,097	$63,137,853
Crop Farming	$85,301,987	$11,749,035	$73,552,952
Livestock	$28,610,990	$1,676,787	$26,934,203
Mining*	$9,702,438	$615,178	$9,087,260
Utilities*	$86,925,998	$42,073,898	$44,852,100
Construction	$0	$19,707,705	($19,707,705)
Durables mfg	$194,372,534	$273,518,859	($79,146,325)
Food product mfg	$99,299,620	$184,877,920	($85,578,300)
Wood products mfg	$91,714,675	$854,342	$90,860,333
Pulp and paper products	$508,444,417	$14,149,170	$494,295,247
All other nondurables mfg	$16,006,871	$267,841,418	($251,834,546)
Wholesale Trade	$44,371,567	$126,493,240	($82,121,673)
Retail trade	$27,774,433	$170,700,519	($142,926,085)
Transportation & Warehousing	$99,862,462	$62,649,041	$37,213,422
Publishing, broadcasting and telecom	$10,836,987	$110,961,207	($100,124,220)
Finance, insurance and real estate	$62,714,659	$418,125,397	($355,410,738)
Professional, tech and mgt svcs	$24,098,021	$118,961,684	($94,863,663)
Educational svcs	$28,286,705	$71,156,539	($42,869,834)
Health & social services	$18,546,935	$384,702,485	($366,155,550)
Arts, entertainment, & recreation	$7,470,500	$38,113,278	($30,642,777)
Accommodation & food services	$12,242,733	$118,159,817	($105,917,084)
Other services	$120,105,752	$121,445,732	($1,339,980)
Government	$10,401,292	$0	$10,401,292

*Note: The relative size and importance of Mining and Utilities as indicated in the table is not consistent with findings during site visits and should be viewed with caution.

Source: IMPLAN software

Table 10. Trade patterns in Dixie County in 2012

Industry Sector	Dixie County		
	Exports	Imports	Net Trade
Total	**$184,936,231**	**$492,681,247**	**($307,745,016)**
Forestry	$13,902,377	$1,640,965	$12,261,412
Crop Farming	$11,446,818	$1,564,083	$9,882,735
Livestock	$5,478,416	$91,535	$5,386,881
Mining*	$849,281	$19,981	$829,300
Utilities*	$0	$12,784,641	($12,784,641)
Construction	$0	$6,235,574	($6,235,574)
Durables mfg	$3,494,290	$41,118,661	($37,624,371)
Food product mfg	$643	$34,180,736	($34,180,093)
Wood products mfg	$85,306,615	$218,379	$85,088,236
Pulp and paper products	$753	$2,711,373	($2,710,620)
All other nondurables mfg	$302,840	$48,764,814	($48,461,974)
Wholesale Trade	$4,847,575	$21,007,760	($16,160,185)
Retail trade	$3,070,249	$42,223,217	($39,152,968)
Transportation & Warehousing	$28,923,729	$9,728,714	$19,195,014
Publishing, broadcasting and telecom	$202,870	$20,774,456	($20,571,585)
Finance, insurance and real estate	$8,356,240	$72,813,714	($64,457,474)
Professional, tech and mgt svcs	$1,288,252	$23,039,718	($21,751,466)
Educational svcs	$4,557,007	$12,232,824	($7,675,816)
Health & social services	$4,657	$78,583,694	($78,579,037)
Arts,- entertainment, & recreation	$288,359	$8,173,209	($7,884,849)
Accommodation & food services	$47,777	$25,891,161	($25,843,384)
Other services	$12,560,384	$28,436,473	($15,876,089)
Government	$7,098	$445,565	($438,467)

*Note: The relative size and importance of Mining and Utilities as indicated in the table is not consistent with findings during site visits and should be viewed with caution.

Source: IMPLAN software

Table 11. Trade patterns in Jefferson County in 2012

	Jefferson County		
Industry Sector	**Exports**	**Imports**	**Net Trade**
Total	**$197,392,424**	**$437,110,611**	**($239,718,187)**
Forestry	$4,111,777	$50,984	$4,060,794
Crop Farming	$30,264,208	$2,013,574	$28,250,634
Livestock	$7,167,261	$423,514	$6,743,747
Mining*	$306,322	$47,277	$259,045
Utilities*	$26,693,144	$6,796,690	$19,896,454
Construction	$0	$4,727,801	($4,727,801)
Durables mfg	$857,192	$36,164,279	($35,307,087)
Food product mfg	$2,609,260	$29,941,968	($27,332,707)
Wood products mfg	$23,937	$329,216	($305,279)
Pulp and paper products	$233	$2,314,695	($2,314,462)
All other nondurables mfg	$66,579	$42,717,605	($42,651,025)
Wholesale Trade	$14,661,700	$23,781,927	($9,120,227)
Retail trade	$2,223,379	$36,374,506	($34,151,127)
Transportation & Warehousing	$24,663,870	$11,201,795	$13,462,075
Publishing, broadcasting and telecom	$3,646,628	$18,161,493	($14,514,865)
Finance, insurance and real estate	$10,998,951	$74,728,969	($63,730,018)
Professional, tech and mgt svcs	$11,541,503	$19,840,568	($8,299,065)
Educational svcs	$7,052,076	$12,316,789	($5,264,713)
Health & social services	$10,377,510	$69,170,727	($58,793,218)
Arts, entertainment, & recreation	$3,318,134	$5,598,465	($2,280,331)
Accommodation & food services	$150,261	$20,627,271	($20,477,011)
Other services	$35,794,283	$19,780,499	$16,013,784
Government	$864,215	$0	$864,215

*Note: The relative size and importance of Mining and Utilities as indicated in the table is not consistent with findings during site visits and should be viewed with caution.

Source: IMPLAN software

Table 12. Trade patterns in Levy County in 2012

	Levy County		
Industry Sector	**Exports**	**Imports**	**Net Trade**
Total	**$485,643,319**	**$1,033,132,327**	**($547,489,008)**
Forestry	$37,468,203	$420,479	$37,047,724
Crop Farming	$43,495,591	$5,329,550	$38,166,040
Livestock	$14,060,410	$223,793	$13,836,617
Mining*	$8,429	$84,901	($76,472)
Utilities*	$69,435,177	$9,683,716	$59,751,461
Construction	$0	$579,884	($579,884)
Durables mfg	$95,209,342	$110,880,893	($15,671,551)
Food product mfg	$11,577,724	$74,274,680	($62,696,955)
Wood products mfg	$3,804,267	$1,220,379	$2,583,887
Pulp and paper products	$7,054	$5,482,392	($5,475,338)
All other nondurables mfg	$458,022	$107,006,080	($106,548,058)
Wholesale Trade	$17,857,944	$51,220,735	($33,362,791)
Retail trade	$8,141,974	$64,020,330	($55,878,356)
Transportation & Warehousing	$36,327,259	$27,730,066	$8,597,193
Publishing, broadcasting and telecom	$2,997,439	$45,974,593	($42,977,154)
Finance, insurance and real estate	$33,181,046	$166,964,594	($133,783,549)
Professional, tech and mgt svcs	$8,989,936	$40,157,586	($31,167,650)
Educational svcs	$9,436,513	$32,057,132	($22,620,619)
Health & social services	$6,987,053	$181,401,665	($174,414,612)
Arts, entertainment, & recreation	$3,810,957	$16,093,978	($12,283,021)
Accommodation & food services	$6,654,574	$46,536,533	($39,881,959)
Other services	$66,705,703	$45,788,366	$20,917,336
Government	$9,028,703	$0	$9,028,703

*Note: The relative size and importance of Mining and Utilities as indicated in the table is not consistent with findings during site visits and should be viewed with caution.

Source: IMPLAN software

Table 13. Trade patterns in Taylor County in 2012

	Taylor County		
	Exports	Imports	Net Trade
Total	**$845,802,057**	**$627,914,795**	**$217,887,262**
Forestry	$20,748,193	$0	$20,748,193
Crop Farming	$795,428	$2,799,628	($2,004,200)
Livestock	$1,992,336	$648,177	$1,344,159
Mining*	$9,374,112	$373,433	$9,000,678
Utilities*	$0	$15,601,100	($15,601,100)
Construction	$0	$7,855,962	($7,855,962)
Durables mfg	$94,960,606	$85,682,679	$9,277,927
Food product mfg	$85,373,107	$46,473,532	$38,899,575
Wood products mfg	$6,963,222	$0	$6,963,222
Pulp and paper products	$508,437,132	$3,848,020	$504,589,112
All other nondurables mfg	$15,182,660	$69,279,449	($54,096,789)
Wholesale Trade	$10,956,652	$33,144,461	($22,187,809)
Retail trade	$19,720,841	$33,547,085	($13,826,244)
Transportation & Warehousing	$14,352,861	$16,212,330	($1,859,469)
Publishing, broadcasting and telecom	$5,109,992	$27,124,777	($22,014,785)
Finance, insurance and real estate	$11,771,762	$104,731,071	($92,959,308)
Professional, tech and mgt svcs	$4,099,015	$36,229,467	($32,130,452)
Educational svcs	$9,826,449	$16,997,894	($7,171,445)
Health & social services	$3,151,891	$57,754,063	($54,602,172)
Arts, entertainment, & recreation	$646,487	$8,854,613	($8,208,126)
Accommodation & food services	$5,669,623	$25,610,655	($19,941,032)
Other services	$15,712,783	$35,146,399	($19,433,616)
Government	$956,904	$0	$956,904

*Note: The relative size and importance of Mining and Utilities as indicated in the table is not consistent with findings during site visits and should be viewed with caution.
Source: IMPLAN software

Employment and output analysis

In Table 14, we compare the share of employment and output (e.g., industry sales) across the major sectors within the local economies in each county. Industries that have a higher share of output relative to their share of employment are those that have a higher than average output per worker. Such high productivity industries could, and typically do, offer a higher level of wages and benefits to some or all of its employees.

For example, in Dixie County only 8% of the county's employment is in the 'Wood Products Manufacturing' sector, however that same industry accounts for 20% of the total output of the county, indicating this sector contributes much more output per worker than other sectors in

the county. Conversely, retail trade in Levy County is a key employer, providing 13% of all jobs but accounting for only 7% of economic output. This helps to explain why retail businesses generally offer lower wage jobs. Output is one factor but not the only factor influencing wage rates. Wage rates are a function of a number of elements, including both fiscal and philosophical cultures within a business.

Table 14. Employment-output analysis by county in 2012

	Dixie		Jefferson		Levy		Taylor	
Description	**Emp**	**Output**	**Emp**	**Output**	**Emp**	**Output**	**Emp**	**Output**
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Forestry	6%	5%	2%	1%	7%	4%	5%	3%
Crop Farming	7%	3%	8%	8%	3%	4%	1%	0%
Livestock	1%	2%	3%	2%	3%	2%	0%	0%
Mining	0%	0%	0%	0%	0%	0%	1%	1%
Utilities	0%	0%	1%	8%	1%	8%	0%	1%
Construction	6%	6%	7%	6%	10%	9%	8%	6%
Durables mfg	0%	1%	0%	1%	4%	8%	4%	7%
Food product mfg	0%	0%	0%	1%	0%	2%	2%	6%
Wood products mfg	8%	20%	0%	0%	0%	0%	1%	2%
Pulp and paper products	0%	0%	0%	0%	0%	0%	7%	36%
All other nondurables mfg	0%	0%	0%	0%	0%	0%	0%	0%
Wholesale Trade	2%	4%	2%	4%	2%	3%	2%	2%
Retail trade	7%	5%	8%	4%	13%	7%	13%	5%
Transportation & Warehousing	12%	8%	8%	7%	4%	4%	2%	2%
Publishing, broadcasting, telecom	0%	1%	1%	2%	1%	1%	1%	1%
Finance, insurance, real estate	5%	21%	3%	18%	4%	20%	3%	10%
Professional, tech and mgt svcs	5%	3%	10%	6%	6%	4%	5%	2%
Educational svcs	2%	0%	2%	1%	1%	0%	1%	0%
Health & social services	3%	2%	7%	5%	7%	4%	9%	4%
Arts, entertainment, & recreation	0%	0%	4%	1%	2%	1%	1%	0%
Accommodation & food services	4%	2%	5%	2%	6%	3%	6%	2%
Other services	13%	3%	10%	10%	10%	7%	12%	2%
Government	20%	14%	20%	13%	16%	11%	18%	7%

Source: IMPLAN software

Regional economic multipliers

Economic multipliers explain the ripple effect that an industry has on an economy as dollars flow between suppliers and consumers of goods and services. For example, a dollar spent at retail on a ream of paper (the so-called direct effect) is in turn spent by the retailer to pay the costs of operating a retail store (utilities, rent, payroll, etc.) as well as the cost of paper purchased from a wholesale supplier (these are the indirect effects). The dollars paid to the wholesaler make their way to the paper manufacturer who in turn uses those same dollars to pay the costs of production (equipment, fuel, payroll, etc.) and to purchase raw materials (pulpwood). The suppliers to the paper industry, in turn, use those dollars to pay their costs of operation. At each step in the process, some of the dollars are spent outside of the local economy and no longer circulate. In addition to the dollars that flow between industries, the dollars paid to employees of the impacted businesses circulate, locally or outside of the region, as part of the employees' typical household expenditures (this is called the induced effect). This process continues until eventually the money associated with that initial purchase has all leaked out of the regional economy.

This multiplier effect is measured not only for its impact on business output, but can also be estimated for employment, income, value added, and other aspects of economic activity. The sum of the direct, indirect, and induced effects represent the total multiplier effect. Because different industries employ different factors of production, they will have different impacts on the regional economy as reflected in the different multipliers. In practical terms, the economic multipliers explain how change in a specific industry will impact the rest of the economy. For example, if a new business opens in Levy County (or an existing business expands), it will have an effect on other businesses throughout the region either by purchasing goods and services from other business in the region or by hiring workers who spend part of their wages in the county.

The size of the multipliers indicates the extent of the impact on other businesses. An output multiplier of 1.9 means that each additional dollar of output by industry “X” will generate an additional 0.9 dollars of output among all other industries in the region (1 dollar in industry “X” plus 0.9 dollars in other industries). Similarly, an employment multiplier of 2.1 means that each additional job created by business “X” will generate an additional 1.1 jobs among all other businesses in the region.

Table 15 shows the different types of economic multipliers for the various industries in the Big Bend region. These multipliers describe the total change that occurs throughout the region as the result of a change in a specific industry. For example, every job in the forestry industry additionally supports between 1.1 jobs in other industries throughout the Big Bend region. Each dollar of output in the wood products industry generates an additional 0.7 dollars of output across the Big Bend. Sectors with larger multipliers are indicative of industries with greater connections to other industries within the county. Expansion of those industries will provide relatively greater employment benefits and returns to the local economy than industries with smaller multipliers. The size of a multiplier, however, indicates nothing about the size of the industry.

Table 15. Regional economic multipliers in 2012

Description	Output	Employment	Income
Forestry	1.8	2.1	1.9
Crop Farming	1.3	1.3	1.4
Livestock	1.3	1.2	1.7
Commercial Fishing	1.2	1.1	1.1
Commercial hunting and trapping	1.3	2.0	1.1
Support activities for agri.and forestry	1.3	1.1	1.1
Mining	1.3	1.5	1.4
Utilities	1.1	1.9	1.3
Construction	1.3	1.3	1.2
Durables mfg	1.2	1.4	1.2
Seafood preparation and packaging	1.3	2.0	1.7
Food product mfg	1.2	2.1	1.4
Wood products mfg	1.7	2.2	2.1
Pulp and paper products	1.2	2.4	1.4
All other nondurables mfg	1.2	1.5	1.2
Wholesale Trade	1.2	1.3	1.2
Retail trade	1.3	1.1	1.1
Transportation & Warehousing	1.3	1.2	1.3
Publishing, broadcasting and telecom	1.2	1.5	1.3
Finance, insurance and real estate	1.2	1.5	1.5
Professional, tech and mgt svcs	1.3	1.2	1.2
Educational svcs	1.4	1.1	1.1
Health & social services	1.3	1.2	1.1
Arts- entertainment & recreation	1.3	1.1	1.2
Accommodation & food services	1.2	1.1	1.2
Other services	1.3	1.1	1.2
Government	1.2	1.2	1.1

* Sector employment data is not disclosed at the county level to protect the privacy of the business(es).
Source: IMPLAN software

Regional economic impacts

As described above, the multiplier effect can extend beyond the county to the broader Big Bend region. In that way, a change in an industry in Levy County can affect businesses across the Big Bend region. Because economic multipliers have very different impacts on a regional economy depending on the specific industry and its connections to other regional industries, a full impact analysis is needed to understand the size of the multiplier effect and which other specific industries are actually impacted.

The next series of tables detail these differences by showing how the multiplier effects of each new job gained or lost in a key industry in the Big Bend impacts the other industries across the entire four-county region. The industries selected for analysis were chosen either to represent a major source of jobs within a county or to illustrate the differences in multiplier effects between different types of industries.

As already noted, wood products manufacturing is the dominant employer in Dixie County. For each new job created or lost in that industry, an additional 1.2 jobs are impacted elsewhere in the region. The other industries that are most impacted by changes in the wood products sector include forestry, support activities for agriculture and forestry, professional, technical, and management services, and retail trade. Each job in the wood products manufacturing sector supports a total of $99,300 of labor income throughout the region and $415,200 of total economic output.

The greatest economic multiplier in Taylor County is found in the pulp and paper industry. There, each job gained or lost impacts 1.4 more jobs elsewhere in the region. The impacts are spread across a wide range of industries including professional, technical, and management services, other services, forestry, and retail trade. Each job in the pulp and paper industry supports a total of $159,700 of labor income and $1.1 million of output across the region.

Those relatively large impacts can be contrasted with the impacts of marine aquaculture in Levy County and crop farming in Jefferson County. Both of these sectors provide lower average income and have smaller multiplier effects than the manufacturing sectors. One additional farming job in Jefferson County, for example, generates only 0.3 jobs elsewhere in the region providing total additional income of $39,100. One additional job in the aquaculture industry in Levy County creates only 0.2 jobs elsewhere in the region with total income of $11,700.

Table 16. Regional impacts of one job in wood products manufacturing in Dixie County

Impact Type	Employment	Labor Income	Output
Direct Effect	1.0	$48,270	$251,238
Multiplier Effect	1.2	$51,061	$163,919
Total Effect	**2.2**	**$99,331**	**$415,157**
Top ten industries impacted by forest products manufacturing in Dixie County.			
Wood products mfg	1.2	$55,924	$291,080
Forestry	0.4	$22,189	$56,166
Support activities for agriculture and forestry	0.1	$6,200	$6,289
Professional, tech and mgt svcs	0.1	$2,247	$7,128
Retail trade	0.1	$1,936	$4,194
Accommodation & food services	0.0	$824	$2,861
Transportation & Warehousing	0.0	$1,145	$4,604
Other services	0.0	$839	$2,498
Health & social services	0.0	$1,636	$3,171
Construction	0.0	$1,205	$3,613

Source: IMPLAN software

Table 17. Regional impacts of one job in crop farming in Jefferson County

Impact Type	Employment	Labor Income	Output
Direct Effect	1.0	$28,681	$100,698
Multiplier Effect	0.3	$10,421	$30,501
Total Effect	**1.3**	**$39,101**	**$131,199**
Top ten industries impacted by farming in Jefferson County.			
Crop Farming	1.0	$29,415	$103,277
Support activities for agriculture and forestry	0.1	$5,404	$5,482
Retail trade	0.0	$770	$1,667
Finance, insurance and real estate	0.0	$657	$11,243
Health & social services	0.0	$648	$1,255
Accommodation & food services	0.0	$230	$799
Other services	0.0	$217	$646
Professional, tech and mgt svcs	0.0	$247	$783
Construction	0.0	$356	$1,068
Transportation & Warehousing	0.0	$163	$657

Source: IMPLAN software

Table 18. Regional impacts of one job in marine aquaculture in Levy County

Impact Type	Employment	Labor Income	Output
Direct Effect	1.0	$6,956	$79,054
Multiplier Effect	0.2	$4,783	$22,640
Total Effect	**1.2**	**$11,739**	**$101,693**
Top ten industries impacted by retail trade in Levy County.			
Livestock	1.1	$7,670	$87,169
Crop Farming	0.0	$1,077	$3,780
Support activities for agriculture and forestry	0.0	$1,213	$1,230
Retail trade	0.0	$233	$504
Finance, insurance and real estate	0.0	$241	$4,126
Transportation & Warehousing	0.0	$134	$538
Health & social services	0.0	$194	$376
Professional, tech and mgt svcs	0.0	$122	$387
Accommodation & food services	0.0	$72	$252
Other services	0.0	$74	$220

Source: IMPLAN software

Table 19. Regional impacts of one job in pulp and paper in Taylor County

Impact Type	Employment	Labor Income	Output
Direct Effect	1.0	$113,218	$882,003
Multiplier Effect	1.4	$46,475	$179,410
Total Effect	**2.4**	**$159,694**	**$1,061,412**
Top ten industries impacted by pulp and paper manufacturing in Taylor County.			
Pulp and paper products	1.0	$113,748	$886,127
Professional, tech and mgt svcs	0.2	$5,376	$17,056
Other services	0.2	$3,217	$9,579
Forestry	0.1	$7,064	$17,880
Retail trade	0.1	$3,133	$6,787
Construction	0.1	$3,800	$11,398
Transportation & Warehousing	0.1	$2,450	$9,850
Accommodation & food services	0.1	$1,385	$4,811
Wholesale Trade	0.1	$3,694	$13,970
Health & social services	0.1	$2,632	$5,101

Source: IMPLAN software

A Summary Snapshot of the Natural Resource-based Industries

By all measures examined in this report, natural resource-based industries, defined here to include forestry, logging, farming, commercial fishing and hunting, and manufacturing based on forest products (e.g., lumber, pulp, paper), play an important role in the Big Bend economy. Tourism, while not directly quantified in existing government statistics, also relies to a great extent on the fishing, hunting, wildlife watching, and outdoor recreational activities afforded by the region's forest and water resources. Across the region, the natural resource-based industries (excluding tourism) account for 24% of total economic output and range from 8.1% of the Levy County economic output to 40.8% of Taylor County output. That is a sharp contrast from the statewide economy where the same industries account for only 1.5% of total output. If we were to assume that one-half of sales in accommodations and food services and one-half of the arts, entertainment, and recreation sectors are tourism based and due to the area's natural environment, they would account for an additional 1.6% of the Big Bend's economic output that is attributable to the natural resource base[3].

Particularly interesting is how each county specializes in a different industry sector.

- Dixie County is dominated by wood products manufacturing.
    - Wood products manufacturing accounts for 69% of all natural resource-based output in the county.
    - Dixie County accounts for 76% of wood products manufacturing in the region.
- Jefferson County is dominated by crop farming.
    - Crop farming accounts for 75% of all natural resource-based output in the county.
    - Jefferson County accounts for 33% of all crop farming in the region.
- Levy County's largest natural resource-based industry is crop farming. It also has a substantial aquaculture sector that is comprised mostly of hard clam farming.
    - Crop farming and hard clam aquaculture account for 48% and 11%, respectively, of all natural resource-based output in the county.
    - Levy County accounts for 50% of all crop farming in the region and its hard clam aquaculture is equal to 30% of animal products in the region.
- Taylor County is dominated by pulp and paper manufacturing.
    - Pulp and paper account for 88% of all natural resource-based output in the county.
    - Taylor County accounts for 100% of all pulp and paper production in the region.

[3]Accommodations, food services, arts, entertainment, and recreation are typically associated with tourism activity. Associating one-half of these industries' output to tourism is somewhat arbitrary and serves primarily as an example of the relative contribution of these industries to the overall Big Bend economy. A more accurate assessment of tourism in the Big Bend is beyond the scope of this study.

20. Value of output in the natural resource-based industries, 2012 ($million)

Industry	Florida	Big Bend Region	Dixie County	Jefferson County	Levy County	Taylor County
All Industries	**1,212,045.1**	**3,672.4**	**473.2**	**429.1**	**1,320.8**	**1,449.3**
Natural resource based industries	**17,851.8**	**906.3**	**139.7**	**47.5**	**127.0**	**592.0**
Natural resources industries %	1.5%	24.7%	29.5%	11.1%	9.6%	40.8%
Farming	**8,400.0**	**142.8**	**21.9**	**41.0**	**73.1**	**6.8**
Crops	6,977.3	103.2	14.3	33.7	51.6	3.6
Livestock	1,422.7	39.5	7.5	7.4	21.4	3.1
Aquaculture	88.5	na	na	na	11.8	na
Forestry	**872.4**	**70.3**	**9.3**	**3.1**	**23.2**	**34.7**
Support for farming and forestry	**1,411.2**	**24.3**	**0.5**	**2.5**	**20.3**	**1.0**
Commercial fishing and hunting	**462.2**	**23.2**	**12.2**	**0.8**	**4.3**	**6.0**
Natural resource based mfg.	**6,706.1**	**645.7**	**95.9**	**0.2**	**6.1**	**543.5**
Wood products	1,628.0	125.7	95.9	0.2	6.1	23.5
Pulp and paper	5,078.1	520.0	0.0	0.0	0.0	520.0
All other manufacturing	120,788.9	330.7	5.5	5.2	126.8	193.2
Utilities, construction and mining	87,023.8	430.1	30.5	62.3	222.0	115.3
Trade and transportation	168,234.2	449.0	78.1	64.9	178.9	127.1
Services	705,532.0	1,183.2	152.5	191.3	526.3	313.2
Government	112,614.4	373.1	66.9	57.9	139.8	108.5

*"na" denotes county-level sales data that is suppressed by the USDA for confidentiality. In 2012, aquaculture operations included 3 farms in Dixie County, 1 farm in Jefferson County, 96 farms in Levy County, and 1 farm in Taylor County.

Source: Implan input-output models, 2012.

The relative contributions of natural resources within the Big Bend region (output versus employment) and in comparison to their role in the statewide economy highlight some interesting differences as shown in

Table 21. In terms of economic output, the natural resource industries account for 24.7% of the total Big Bend economy, but comprise only 1.5% of the statewide economy. In the Big Bend region, manufacturing firms account for nearly three quarters of all natural resource-based output (primarily from pulp and paper) but only one quarter of natural resource-based output in the statewide economy.

The role of natural resource-based industries can also be measured in terms of the jobs that they provide. Due to the significant role of manufacturing in the Big Bend's natural resource economy, the share of employment is somewhat less than the share of output[4]. Where those industries account for 24.7% of the region's output, they provide 15.5% of the region's jobs.

[4] Manufacturing industries typically have a higher ratio of output per worker than most other industries. As a result, they generally offer higher average wages per job than many other industries.

That is still a much larger contribution to the local economy than the 1.5% of jobs found in the statewide economy.

Table 21. Distribution of output and employment in natural resource based industries in Florida and the Big Bend region

	Industry Output		Employment	
	Big Bend	**Florida**	**Big Bend**	**Florida**
All Industries	$3.7 Billion	$1.2 Trillion	29,800 jobs	9,774,000 jobs
	100%	**100%**	**100%**	**100%**
Selected natural resource based industries	**24.7%**	**1.5%**	**15.5%**	**1.5%**
Farming	**3.9%**	**0.7%**	**5.2%**	**0.7%**
Crops	2.8%	0.6%	3.5%	0.6%
Livestock	1.1%	0.1%	1.7%	0.1%
Aquaculture	0.3%	0.0%	na	na
Forestry	**1.9%**	**0.1%**	**2.0%**	**0.0%**
Commercial fishing and hunting	**0.6%**	**0.0%**	**1.7%**	**0.1%**
Support for farming and forestry	**0.7%**	**0.1%**	**1.9%**	**0.5%**
Natural resource based manufacturing	**17.6%**	**0.6%**	**3.9%**	**0.2%**
Wood products	3.4%	0.1%	1.8%	0.1%
Pulp and paper	14.2%	0.4%	2.1%	0.1%
All other manufacturing	9.0%	10.0%	3.6%	3.1%
Utilities, construction and mining	11.7%	7.2%	9.0%	5.8%
Trade and transportation	12.2%	13.9%	18.1%	17.4%
Services	32.2%	58.2%	36.9%	59.6%
Government	10.2%	9.3%	17.7%	12.5%

Farming

The farm sector in the Big Bend varies across the counties and differs somewhat in comparison to farming on a statewide basis. The percent of total land area dedicated to farms ranges from 5.6% in Taylor County to 33.8% in Jefferson County (Table 22). That is generally comparable to the statewide figure of 27.8% of land area devoted to farming. The average size of farms varies, somewhat. Agriculture in Levy County, in particular, appears to be characterized more by numerous small farms than the other counties in the region.

- Jefferson and Levy Counties are the dominant farming areas. Together they account for 81.3% of all farms and 78.2% of the total acreage in farms in the region.
- With the smallest numbers of farms, Dixie County and Taylor County have only 10.0% and 5.6% of their land areas devoted to farming, respectively.
- Farm size in the Big Bend is generally larger than it is statewide. Only 31% of all farms in Florida have 50 or more acres of land area. Across the Big Bend, the percentage of farms in that size category ranges from 35.3% in Levy County to 55.2% in Taylor County.

Table 22. Selected farm statistics, 2012

Industry	Florida	Big Bend	Dixie County	Jefferson County	Levy County	Taylor County
Number of farms	**47,740**	2,055	**204**	**617**	**1,053**	**181**
Land in farms (acres)	9,548,342	379,515	45,189	129,520	167,359	37,447
Percent of land in farming	27.8%	56.8%	10.0%	33.8%	23.4%	5.6%
Average size of farm (acres)	200	185	222	210	159	207
Farms by size:						
1 to 9 acres	25%	15%	18%	13%	15%	11%
10 to 49 acres	44%	45%	43%	43%	49%	34%
50 to 179 acres	18%	25%	20%	29%	23%	33%
180 to 499 acres	7%	9%	13%	9%	8%	15%
500 to 999 acres	3%	2%	2%	4%	1%	2%
1,000 acres or more	3%	3%	4%	3%	3%	5%
Total	100%	100%	100%	100%	100%	100%

Source: USDA Census of Agriculture 2012.

While farming in Florida is heavily skewed toward crop production, farming in the Big Bend is somewhat evenly balanced between crops and livestock production (Table 23). Over 77% of farm product sales in Florida involve crops (which includes grains, row crops, orchards, nursery, and greenhouse crops). Crops account for 43.6% of sales in Jefferson County, 47.6% in Levy County, and 58.7% in Taylor County. The value of animal production is similar: from 41.3% of farm sales in Taylor County to 56.4% in Jefferson County. Aquaculture (hard clam farming) is an important type of animal production in Levy County, accounting for 14.7% of agricultural product sales.

Table 23. Value of farm output ($million), 2012

Industry	Florida	Big Bend	Dixie County	Jefferson County	Levy County	Taylor County
Market value of agricultural products sold*	$7,701.5	$153.6	$19.1	$48.3	$80.4	$5.8
Crops production, including nursery and greenhouse crops	$5,969.4	$3.4	na	$21.1	$42.1	$3.4
Animal production	$1,732.1	$2.4	na	$27.2	$38.3	$2.4
Aquaculture (hard clams)	$88.5	na	na	na	$11.8	na
Distribution of agricultural products sold						
Crops production, including nursery and greenhouse crops	77.5%	49.5%	na	43.6%	52.4%	58.7%
Animal production	22.5%	50.5%	na	56.4%	47.6%	41.3%
Aquaculture (hard clams)	1.1%	na	na	na	14.7%	na
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

"na" denotes values that are suppressed in the USDA Census of Agriculture for confidentiality.
**Values differ from Table 21 due to differences in data sources and definitions. Table 21 reports value of production while Table 23 reports farm sales. Table 21 does not account for changes in inventory that may be reflected in Table 23.*
Source: USDA Census of Agriculture, 2012.

Aquaculture

Hard clam aquaculture is a relatively new industry in the Big Bend region, having emerged in response to a ban on gill nets in 1994 that resulted in the closure of most traditional commercial fishing in the region. The resulting displacement of the area's local fishermen led to a retraining program to develop hard clam aquaculture as an alternate source of employment. Owing to ideal conditions, the community of Cedar Key in Levy County has become the center of aquaculture operations in the Big Bend region.

By USDA's definition, aquaculture represents a type of livestock production involving the farming of fish for food, sport, bait, or ornamental uses. It includes finfish, crustaceans, mollusks, and other cultured marine organisms that live in either freshwater or saltwater. The USDA Census of Agriculture defines aquaculture production to include some form of intervention in the rearing process that requires inputs such as seeding, stocking, feeding, protection from predators, etc. It also requires ownership of the stock being cultivated and harvesting that is conducted in a controlled environment by the operation.

With assistance from researchers at the University of Florida, the industry has grown from a small start-up industry to an important source of income and jobs. Since its beginning, the industry has overcome challenges including hurricanes and oil spills. According to USDA, in 2007 over 200 local clam farms were producing a product with sales in excess of $13 million. By

2012, the USDA Census of Agriculture reported sales of hard clams had declined somewhat to $11.8 million while the number of farms was reduced to less than half as many to 93 farms. This is likely the result of consolidation as the industry evolves and matures as well as impacts from the downturn of the economy and reduced prices received by clam growers and wholesalers. While the number of farms has declined the average value of output per farm has grown from $65,000 per farm in 2007 to $127,000 per farm in 2011.

The industry today exists as one of the two largest hard clam aquaculture producers in the country. Based on numbers from USDA, Levy County accounts for 94% of total hard clam production in the state of Florida. A University of Florida study in 2009 found that hard clam growers in the northwest region of the state (dominated by Levy County aquaculture) directly employed 254 people and provided $11.8 million of labor income. Including the multiplier effect, the growers and processors involved in hard clam production in that area of the state produced total economic output of $44.9 million and supported 556 jobs with a combined labor income of $23.0 million.

Forestry and forest products manufacturing

With over 1.6 million acres of forested land, the counties of the Big Bend region are some of the most heavily forested areas of the state of Florida. Overall, approximately 47% of the state's total area is forested, while 73.3% of the Big Bend region is classified as forest land. That represents a particularly important resource for the region's economy. Outside of the value that forests provide in terms of ecosystem services or as a locale for tourism and outdoor recreation, the economic aspects of the forests derive from the management activities and harvesting of trees to the manufacturing of forest-based products.

As with farming and aquaculture, the individual counties exhibit considerable differences with regard to forest-based industries. Table 24 summarizes the detailed forestry and related forest products manufacturing industries that operate in the Big Bend region. Across the region, forestry and forest products industries produced $715.8 million of value in 2012, ranging from $3.3 million in Jefferson County to $578.2 million in Taylor County.

- In the Big Bend region, forestry and logging operations account for only 9.8% of the total forestry and forest products output. Almost 50% of that output occurs in Taylor County.
- In Dixie County, the industry is dominated by sawmills.
    - Sawmills account for 87.4% of all forest and wood products output in that county.
    - Dixie County accounts for 77.6% of all sawmill production in the Big Bend region.
- In Jefferson County, the output of the forestry and forest products industry is $3.3 million which is mostly due to commercial logging activity
- In Levy County, the forestry and forest products industry is evenly split between forestry activities and commercial logging.
- In Taylor County, the industry is dominated by pulp mills.

- Pulp mills account for 89.9% of all industry output in Taylor County.
- Taylor County accounts for 100% of all pulp mill production in the Big Bend region.

Table 24. Value of output in forestry and forest products manufacturing industries, 2012 ($million)

Industry	Florida	Big Bend Region	Dixie County	Jefferson County	Levy County	Taylor County
Forestry, forest products, and timber	542.2	27.3	0.8	0.0	12.1	14.4
Commercial logging	288.6	43.0	8.5	3.1	11.1	20.4
Sawmills and wood preservation	410.4	112.7	87.4	0.2	2.4	22.6
Veneer and plywood mfg.	172.1	2.4	0.0	0.0	2.4	0.0
Engineered wood members and trusses	231.3	0.0	0.0	0.0	0.0	0.0
Reconstituted wood product mfg.	26.9	0.0	0.0	0.0	0.0	0.0
Wood windows, doors and millwork mfg.	370.8	0.0	0.0	0.0	0.0	0.0
Wood container and pallet mfg.	128.8	8.5	8.5	0.0	0.0	0.0
Manufactured home (mobile home) mfg.	101.1	1.0	0.0	0.0	1.0	0.0
Prefabricated wood building mfg.	14.1	0.0	0.0	0.0	0.0	0.0
Miscellaneous wood product mfg.	94.9	0.8	0.0	0.0	0.0	0.8
Pulp and paper mills	4,836.3	520.0	0.0	0.0	0.0	520.0
Total	**7,217.6**	**715.8**	**105.2**	**3.3**	**29.1**	**578.2**

Source: Implan software.

Policy analysis

This study has shown that the Big Bend region is inextricably linked to the natural resources located within its counties. A majority of the economy is derived directly from the region's natural resources, especially timber, but also farming (including aquaculture), recreational and commercial fisheries (including shellfish), recreation, tourism, minerals (limestone), and limited energy development (mostly solar). The rate of utilization of these natural resources varies by county, with forestry being the one constant activity across the region. Table 25 and Figures 31 and 32 show the heavy dominance of forests on the landscape.

Table 25. Acreage and landscape summary by county in 2013

	Dixie	Jefferson	Levy	Taylor	Florida
Urban	4%	10%	4%	3%	17%
Row Crops	1%	5%	0%	5%	5%
Pasture/ Grassland	3%	12%	2%	8%	12%
Forest Seed Production	0%	0%	0%	0%	0%
Fruit Production Orchards	0%	0%	0%	1%	3%
Young Pine	6%	7%	9%	3%	3%
Sand Pine	0%	0%	0%	0%	1%
Loblolly/ N. FL Slash Pine	35%	23%	36%	35%	14%
Longleaf	0%	2%	0%	0%	2%
Longleaf Pine/ S. FL Slash Pine	0%	4%	0%	0%	2%
Hardwood	2%	3%	1%	4%	2%
Mixed	6%	8%	2%	8%	4%
Cypress	2%	2%	1%	2%	3%
Mangroves	0%	0%	0%	0%	2%
Other Forested Wetlands	29%	13%	30%	25%	13%
Non-Forested Wetlands	13%	11%	12%	5%	12%
Water	1%	1%	0%	1%	4%
Other	0%	0%	0%	0%	0%
Total Area	100%	100%	100%	100%	100%

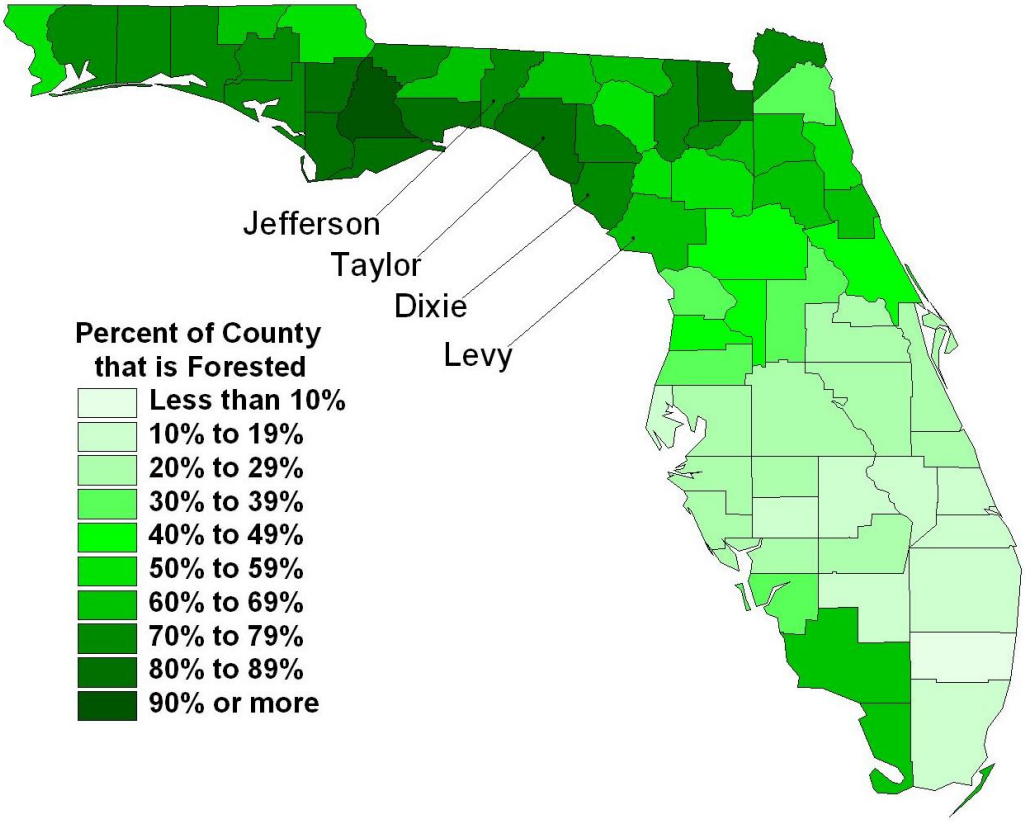
Source: Florida Forest Service Land cover data

Summary of community economic development leader interviews

On-site visits and follow-up interviews were conducted with county managers and economic development and tourism specialists covering Dixie, Jefferson, Levy, and Taylor counties. The purpose of the interviews was to gain a better understanding of the drivers behind recent economic growth trends and current economic development activities, both actual and potential.

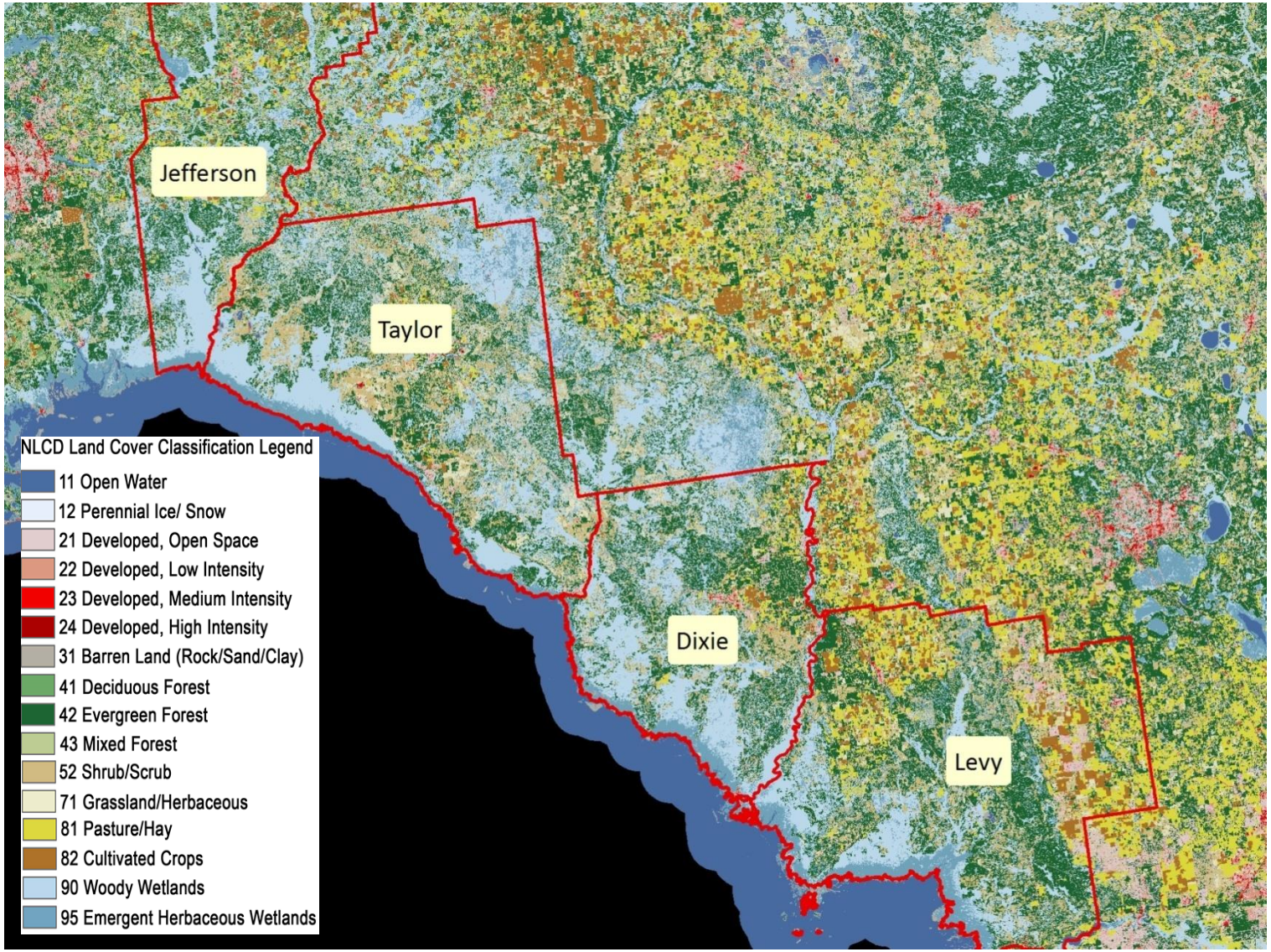
A recurring theme from the interviews of community economic development leaders is that the Big Bend's natural areas, open space, farmland, forests, and marine and freshwater resources provide an advantage over other areas of Florida and are the basis for future economic growth, if managed wisely. They also represent a disadvantage. The high reliance on natural resources reflects the rural nature of the region. The fact that much of the region is rural and far from larger population and economic centers is a challenge to the economic viability of the area.

Figure 31. Percent of county which is forested in 2013



Source: Florida Forest Service Land cover data

Figure 32. Florida's Big Bend Region: Selected counties and land cover



Source: Multi-Resolution Land Characteristics Consortium National land cover database 2011

Area leaders acknowledge the difficulty of attracting businesses and corporations due to limited infrastructure and access to transportation (interstates, airports, ports, and rail hubs). Another challenge is the low number of skilled workers. The area's distance from population centers compounds the challenge, making it difficult to attract or keep skilled workers.

Respondents almost uniformly indicated the importance of conserving and maintaining current protections of the region's natural assets. All respondents clearly stated there is a link between the area's abundance and health of its natural resources and future economic growth. Most stated the importance of maintaining natural areas and resources for future generations, while avoiding overdevelopment of recreation and tourism to the point where natural resources are damaged or no longer sustainable. Respondents stated the need for balance: indicating that some areas should be maintained in natural conditions such as timberland, wetlands, or wildlife management areas, while other areas are appropriate for manufacturing and industrial development (much of which depends on steady supplies of natural resources from the area).

In the interviews, the county officials reported various approaches to address these challenges (a brief list is provided in the next section). In most cases, economic development functions are not pegged to county employees with a specific economic development job title, but rather are performed by a hired consultant or as part of a larger economic development council, such as the North Florida Regional Economic Development Partnership. The exception is Dixie County where the county manager is also the economic development point person.

All respondents noted that over the next 10 to 20 years, they expect their natural resources will play a significant role in their county's development, with some resources more important than others.

Table 26. Ranked importance of natural resource base to the county's overall future economic growth

	Not important		Critical	
	1-2	3	4-5	N
Forests	0%	0%	100%	8
Farms and ranches	25%	0%	75%	7
Gulf finfish and shellfish	29%	0%	71%	7
Gulf (other)	29%	0%	71%	7
Wetlands	25%	13%	63%	7
Rivers and streams	14%	29%	57%	8
Wildlife	0%	43%	57%	8
Renewable energy	50%	0%	50%	8
Mineral resources	50%	0%	50%	6
Oil and gas	67%	17%	17%	6
Other (water, clamming, aquaculture, aquifer)	0%	0%	100%	3

It is informative to note how the interview questions were interpreted in this instance. In some cases, officials recognized the critical importance of forestry, which they expect to remain a

component of their economic future, but nevertheless rated forestry and agriculture as a low source of future economic growth as all land suitable for forestry is already planted. Very little expansion in timber benefits were expected, save for bringing in more mills, biomass-based energy production, or related value-added businesses, which were categorized as industrial not agricultural activities. In other words, the officials had the view that protecting the current resource is crucial to maintaining the baseline economic health of the region, but any additional growth will likely come from new resource-related industry rather than relying on an expansion of the current industrial base.

To varying degrees, all of the counties included in the interviews pursue economic development-related funding assistance. In most instances they use state programs, but several also utilize federal dollars, especially USDA-supported programs that were not recognized by the interview respondents. Interviews with USDA officials noted several programs for rural housing and infrastructure that supported recent projects in the Big Bend counties that were not identified by county officials. These sources supplement county-run economic development efforts such as economic development planning, designated regional employment centers, industrial parks, natural resource areas or management plans, downtown development plans, revolving loan funds, matching grant programs, tax abatement programs for new businesses (frequently as part of industrial parks), and employment training programs. But again, the counties vary in their use of such economic development programs.

Not all counties could detail the total investments made in economic development programs in recent years or the resulting jobs or growth. This is not surprising given the necessary intermingling of various local, state, federal, and private funds and programs, the varying nature of employment, and the effects from national economic and employment trends. Of the amounts invested that could be identified, the estimated combined regional total was approximately $76 million, though the actual total is likely much higher. The four counties noted a combined total of 27 economic development projects in the past five years.

Reflecting on the overall trend in economic growth over the past five years, the general attitude is that there has been steady improvement. Examples of new growth include modest expansion of existing businesses, new non-profit organizations, small local service businesses, niche farming, and new businesses in the hospitality sector. Some of the larger projects were linked to timber, farming industries, and retail industries, along with some miscellaneous manufacturing. All respondents expected continued growth rate over the next 10 to 20 years in varying sectors, but were hesitant to project growth in percentage terms. Of note, of those who could provide estimates, recreation and tourism were expected to grow in some cases by 15 to 50 percent.

The tourism development specialists included in the interviews noted the importance of the region's natural resources to their sector. Though they stated the challenge of competing with other counties in Florida for tourist dollars, all noted that significant effort was being made to promote the recreation and tourism opportunities in the area. They are all utilizing Visit Florida funds and other sources whenever possible to increase their reach but face challenges from the

lack of funds available to market and advertise on the level of other counties. Several also noted greater interest from Europe and even Brazil for eco-tourism and visiting natural areas. The respondents did note the importance of seeking a balance between the number of people utilizing natural resources and proper conservation to prevent damage and abuse. The adequacy of current land use policies that impact freshwater and the area's popular natural springs were a concern too.

Overall, in regard to questions about whether adequate protections exist to sustain natural resources as they relate to industrial, agricultural, and tourism development, a majority of respondents felt current protections were adequate. Of those who disagreed with the current level of protection, several said their county could do more, such as coordinating efforts across counties, not allowing large businesses to wield undue influence over resource protection regulations, and protecting the region's natural springs.

Finally, the interviews addressed the greatest needs for sustaining the role of the area's natural resource base as a source of long-term economic growth. The overriding themes that emerged were sustaining, conserving, and protecting what already exists for current users and future generations. Of importance is that none of the respondents voiced concerns for the current health of the region's natural resources (except for some apprehension concerning the area's natural freshwater springs). However, proper maintenance and sustainability is the key toward the region's current and future quality of life. As one county administrator said: "Use Terra Firma, but protect it when necessary."

When considering the overall economic analysis of the region, it is important to take into account the location of individual counties and each one's unique traits. For example, a county that features direct coastal access and reaps benefits from its marine and riverine resources has a different perspective than one that lacks or has limited Gulf access, and depends on forest, agriculture, and mineral resources. The counties vary in the amount of public land and large private lands which may limit the amount of resources available for public use and economic development. In other cases private working lands were acknowledged for their direct contribution to economic development (i.e. forestry). Finally, the large portions of the coast held as refuges and wildlife management areas were cited in some cases for providing positive contributions to the regional economy, especially for fishing (commercial and recreational), hunting, wildlife viewing, hiking and more.

Regional strength, weaknesses, opportunities and threats (SWOT) analysis

SWOT analysis is a structured exploration of a project, enterprise, or in this case, a regional community, based upon its identifiable strengths (S), weaknesses (W), opportunities (O), and threats (T). The goal is to identify internal advantages and disadvantages currently present within the Big Bend region. Balancing these are the recognized opportunities to draw upon the Big Bend's advantages to ensure sustainable utilization of the region's resources and long-term economic growth as well as the recognized threats which could exploit gaps in current policies

and programs. The results in Figure 33 provide direction for future development efforts to take while still maintaining healthy natural resources.

Figure 33. Big Bend region SWOT analysis

STRENGTHS	WEAKNESSES
• Ample timber, fisheries, and agricultural resources • Abundant natural amenities, including public lands, the Gulf, and the region's rivers and springs • Underutilized/available labor • Parts of the region are served well by transportation infrastructure • Industrial parks available for expansion • Increasing support for greater economic development efforts • Support from economic and tourism development agencies • Effective resource protection tools exist for most natural resources • Access to the Gulf for tourism, recreation, and commercial fisheries, (including aquaculture)	• Lack of industrial lands or tenant-ready buildings (in certain locales) to accommodate new industries • Under-educated work force. Need for stronger core academics and workforce development • Inadequate supply of qualified truck drivers • Limited capital to expand education, infrastructure, and transportation • Underserved health care and other services for residents • Outmigration of young and skilled workers • Limited or no access to the Gulf in certain locales • Limited funds to market and advertise the area's tourism opportunities

OPPORTUNITIES	THREATS
• Timber supplies to support increased pulp & paper production, bioenergy, and wood products manufacturing • Growing demand for local fisheries and crops due to niche agriculture/ locavore movement benefits smaller growers and producers • Growing demand for nature tourism, eco-tourism, and agri-tourism from domestic and international tourists • Responsive programming at community colleges, including technical, hospitality, and other training programs • Access to abundant clean water • Access to public lands to attract ecotourism investments • Cultural support for keeping working lands working for existing industry, new businesses, and entrepreneurs • Draw as a regional forestry hub in the heart of Florida's "wood basket " • Opening of nearby Klausner saw mill • Coordination of Gulf restoration funding through the RESTORE Act • Growth of hard clam fisheries	• Over-reliance on small concentration of firms for significant employment • Changing business practices, costs, ownership, and/or manufacturing could affect industry viability • Lack of balance between potential economic growth and natural resource protection • Conversion of forests to more intensive land uses reduces timber supply and threatens water quality/quantity • Intensive fertilizer and water use can result in degraded water resources, threatening the region's rivers, springs, fisheries, and drinking water supplies • Consolidation of small farms by larger firms from outside the region • Need to continually improve forest management practices, especially for small private landowners • Concern that forests being overcut, not enough reforestation • Potential lack of unity within the region for new efforts

Ideas for Growth

Economic growth in the Big Bend can build upon and preserve the character of local communities while offering opportunities for business development and jobs. The Big Bend's natural resources define the region and hold the key to its future. Unique and innovative businesses that can leverage the value of the natural resource base while protecting it for future generations can put the region on a trajectory for sustainable growth. Protecting freshwater resources, supporting growth in the timber and forest products industries, developing opportunities for small scale farming and fishing, and enhancing recreational access are areas where creative solutions can make a difference to the region's economic future.

Overall, the Big Bend counties share a common geography and related economies. Working together could provide opportunities to realize stronger economic and community outcomes. Local officials indicated the importance of proactively coordinating efforts across counties to ensure conservation that sustains the Big Bend's people and economy. In addition, discussions with state and federal agencies indicate that evidence of regional vision and partnership could create additional funding opportunities.

Forestry, Timber, and Forest Products:

Although the acreage of working forests is unlikely to expand significantly, communities can take steps to maintain and protect existing forests and develop stronger partnerships with forest-based industries to support economic growth, markets, and jobs. A local forest industry leader underscored the importance of good and continually-improving management practices, stating that "to sustain the industry, you have to sustain the forest." Other industry and community leaders stressed the need to improve forest markets and to ensure that reforestation exceeds forest cuts for future forest health. Maintaining healthy working forests contributes to clean water for people and fisheries, increased recreational opportunities, and resiliency from natural hazards, as well as continued economic opportunities. Working forest investors are seeking communities interested in sustainable forest production and related industries - opportunities found in the Big Bend region.

As part of Florida's "woodbasket," the region can create a timber products hub through partnerships focused on training, infrastructure, and marketing assistance that supports the industry's future vitality. Local forest industry representatives have indicated the shortage of trained commercial truck drivers. Locally delivered training could help meet this demand. More broadly, the area could consider creating a facility focused on training needs for forestry and other natural resource industry jobs and businesses. In addition, helping small forest owners retain and better manage their property through stewardship planning and forest certification will help ensure supplies of forest products for the mills and the continued health of working forests and forest products.

Spotlights for action targeting forestry

- Continually improve forest management
- Become a regional hub for forest innovations
  - Identify new products
  - Research new markets
- Training for needed skills
  - Commercial truck drivers
  - Forestry contractors
  - Small forest owners
- Regional branding initiative of forest products
- Additional economic research to advocate for value of the region's forests

One of the strongest opportunities is to capitalize on new markets for forest products. The existing Gainesville wood-fired biomass plant provides new opportunities as it expands its market and the two new planned pellet plants in the middle Suwannee River basin offer new bioenergy opportunities. In addition, the new Klausner saw mill, located in Suwannee County, opens yet another regional market opportunity. The area can further explore the viability of harvesting underutilized waste wood or pulpwood for use locally or for international markets.

Other opportunities include:

- Non-timber wood products. Collection of pine straw is one such possibility, with some areas realizing revenues equal to pulpwood. Resin tapping is another process seeing a resurgence, with new tapping methods leading the way. Both are labor-intensive processes but provide potential complementary revenue streams to timber production, subject to additional research.
- New markets for manufacturing by-products. Uncovering new uses for current by-products of the wood products and pulp and paper industries could provide another way for value-added utilization of the area's forest resources without competing with existing industry for raw materials.
- Carbon offset markets. Such markets are still in development but can be opportunities for longer-term consideration as a means to create additional revenue streams and incentives for landowners to sustain their working forests.
- Branding Big Bend forestry products. One opportunity is to market Big Bend wood for use in green building projects. Florida's growing green building demand and rebounding construction may provide market opportunities for Big Bend's products.
- Reforestation programs. New genetic research is increasing yields, but policy also needs to prevent drains on forest production. The first step is to determine an accurate count of actual cuts. Then, incentives for reforestation could support replanting and good management to stave off possible shortages due to increasing market demands.
- Agri-tourism related to forestry and timber production. More people are seeking experiences instead of passive recreation for their time off. Learning about wood products and timber harvesting could be coupled with the area's existing forest heritage attractions such as the Forestry Museum in Perry.
- .

Finally, when and where appropriate, conservation easements can provide a revenue source for forest owners to sustain their business. The injection of a new source of capital can provide greater local certainty and community benefits along with resources for investing in priority business needs.

Tourism

Nationally, sustainable tourism, including nature-based, agri-tourism, cultural heritage, and experiential tourism, has been a fast-growing part of the tourism industry for the past decade. According to the Outdoor Industry Association research, in 2012, Florida generated $38.3 billion

in consumer spending from outdoor recreation. The Big Bend communities can capitalize on these trends by leveraging existing tourism attractions including its freshwater springs, trails, recreational hunting, fishing and scalloping, and traditional hunt clubs.

In addition, the wide range of state and federal lands could help expand economic opportunities for local communities. While resource management is paramount, further discussions could explore opportunities for additional boating, trails, and other facilities within state and federal lands, thus providing additional access and assets that help local communities thrive while building local advocates for agencies and their programs and mission.

An inventory of the tourism assets across the region would further contribute to the area's ability to develop tourism products and connections and eventually market tourism across the four counties and beyond. Tourism products and connections with a regional flavor can be formulated to market the "Old Florida" experience in the Big Bend or highlight the area's forestry heritage. Cultural, historical, and nature-based tourism can be widely promoted, especially to international audiences that are willing to pay more for high quality outdoor experiences they cannot obtain in their home countries. The region can also capitalize on its existing assets, telling the story of its forestry heritage, the tremendous success of hard clam fisheries in Cedar Key, the historic railroad industry and recent conversion to recreational trails, and other assets reflective of the area's history and culture.

Spotlights for action targeting tourism

- Training for hospitality businesses and employees
  - Best management practices
  - Tourism marketing
- Apply "Old Florida" as a regional tourism brand
- Inventory tourism assets
- Explore expansion of recreational access to public lands

Agriculture, including Aquaculture

Agriculture is also an important industry, providing a high percentage of local jobs across the Big Bend and some of the highest net exports in three of the four counties. While farming in Florida is heavily skewed toward crop production, farming in the Big Bend is somewhat evenly balanced between crops and livestock production, accounting for $142.8 M in economic output. Levy and Jefferson counties have the largest farm economies, together generating 80% of the region's farming output.

As with forestry, the ongoing commitment to good agricultural management practices provides multiple benefits to farms large and small. Conservation tillage, no-tillage, cover crops, and erosion control help maintain the soil structure and prevent runoff. Conservation tillage also can reduce fuel consumption and costs. Some Big Bend farmers also rotate row crops to grass crops to reduce fertilizer use, improve soil structure, and use less water. A local agricultural expert noted the common use of these practices and the area's intact sense of stewardship. As

evidence he cited comments from a local farmer who expressed the desire to keep water on his property, but if it does run off, he wants the water to be clear and clean. As with forestry, conservation easements are also available for protecting farmland.

Across the Big Bend, both large agricultural operations and small-scale farming have the need for infrastructure to support value-added processing including refrigeration, storage, and processing facilities. Such infrastructure would enable smaller scale farms to pursue direct farm sales and for both large and small operations to capture the added value, enabling vertical integration. Training on basic business principles and technical assistance on using online direct marketing are also identified as needs, especially among family and small farm owners.

In the Big Bend, agriculture includes the commercial hard clam aquaculture industry of Cedar Key (aquaculture is grouped under agriculture; wild shellfish fisheries are a part of commercial fishing). Cedar Key's hard clam industry arose from job retraining efforts to counter the loss of oyster harvesting grounds and commercial net fishing. Building on one of the most successful retraining efforts in Florida, the region should continue to capitalize on the industry by pursuing related business opportunities, such as further expansion of leases, modification of leases for water column usage, new culture and processing technologies, or diversification of the shellfish species, such as recent investments in oyster culture.

Local officials noted the trend for locally-sourced foods and specialty foods that creates opportunities for expanding the area's niche farming industry. The region can expand cooperative promotions and sales efforts and develop opportunities for food hubs, value-added food businesses, farmers' markets, community-supported agriculture, farm visits, online markets and marketing, and direct connections between farms and institutional markets like schools and hospitals. Many areas in the U.S. have also created regional farming brands. The promotion of Cedar Key Sweets Littleneck Clams is a local branding example. Securing organic certification can also help the local-foods farmers.

Spotlights for action targeting agriculture

- Expand or continue best management practices
- Develop value-added processing infrastructure
- Expand clam and oyster cultivation
- Promote locally grown foods
- Partner with tourism networks and hospitality business to promote agri-tourism
  - Farm bed-n-breakfast
  - Open farm days

Commercial and Recreational Fisheries

Elsewhere in the region, the coast supports a commercial shellfish industry including oysters, pink shrimp, and blue crab. Commercial fishing accounts for $23.2 M in output across the Big Bend. Dixie County has the highest concentration of this industry, accounting for $12.2 M,

more than half of the region's output. Taylor generates another third, with $6.0 M of output. The seagrass beds and salt marshes of the Big Bend Seagrasses Aquatic Preserve provide nursery and forage areas for finfish and shellfish, including commercially and recreationally important species such as mullet, sea trout, redfish, flounder, shrimp, oysters, and scallops. According to the University of Florida, commercial craft may fish the Big Bend's waters, but typically make landings closer to population centers with air and land connections.

In 2011, Florida's recreational anglers spent $4.6 billion on fishing-related activities. More boat ramps might increase recreational fishing in the area, but limited access is actually good for fisheries, as increased development can decrease catch. The Big Bend is also a popular destination for recreational scalloping, especially in Keaton Beach and Steinhatchee. More engaged discussion can help explore how to increase the economic output of commercial and recreational fishing without negative impacts to the fishery resources.

Community-wide opportunities

Education, Job Training and Entrepreneurial Development

Recent improvements in educational attainment are possibly a reflection of investments in public schools and community colleges. These investments should be continued, and opportunities to expand and strengthen the programs that are working should be explored. Partnerships between industries and community colleges, for example, might create training programs that will strengthen local workforce skills. Likewise, establishment of internship and apprenticeship programs can be important investments in industry-specific workforce development. Finally, early career-based education can cultivate work skills and opportunities for Big Bend's youth—the future workforce.

Programs and policies directed at small business and entrepreneurial support can encourage business formation and job creation. For example, a 12-county region in Pennsylvania created a small business outreach coordinator to work across the area, cultivating and supporting recreational equipment manufacturers, outfitters and other outdoors-focused retailers, farmers, and tourism outposts like bed and breakfasts and restaurants. A North Carolina program provided small planning grants for youth-led efforts in creating small businesses; the program helped young adults from rural areas learn business skills and improve opportunities in their communities. Other areas hold small business or entrepreneur training or other educational opportunities at community colleges and training centers. In addition, special job-specific training, such as commercial driving licenses for logging truck contractors and vocational education for repairing the increasingly sophisticated agricultural and forestry equipment, can build local skills.

Funding:

Funding is always in demand. This analysis revealed some opportunities to access additional funding for the area, particularly through state and federal programs. More funding sources are listed in the next section below. The area can attract the attention of funders. For example, discussions with the USDA Rural Development staff revealed the agency's focus on regional initiatives and interest in receiving applications to support the needs of the Big Bend region. Information is available through USDA's three Rural Development offices across the area (see below). The Florida Department of Economic Opportunity and Enterprise Florida also expressed interest in inquiries from the area.

In addition, there may be funding opportunities associated with penalties arising from the 2010 Deepwater Horizon oil spill via the RESTORE Act. Finally, given the focus on keeping working lands working, there may be funds available through the recently-approved Florida Water and Land Conservation Initiative (Amendment 1) to purchase conservation easements on working forests and farms. This is one way to generate additional income for the landowners, while keeping the lands on the tax rolls.

Rural development programs & initiatives

Listed below is a catalogue of programs that currently exist in the Big Bend region and their coordination across agencies. This list shows a diverse range of initiatives impacting the area but is not intended to represent an exhaustive compendium of all programs. Federal agencies, in particular, offer a large number of individual programs to address a variety of needs.

A particular problem facing the Big Bend region, as defined by the four counties included in this study, is its lack of congruent borders with most existing regional development programs and agencies. This fragmentation will likely hamper efforts to coordinate development efforts across the region unless an explicit initiative is created to provide a point of coordination across agencies or even across regional offices of a single agency. Two specific examples include the U.S. Department of Agriculture (USDA) and the U.S. Economic Development Administration (EDA).

- USDA divides the state of Florida into seven areas dividing the four Big Bend counties across three service areas:
    - Area 2 covers **Jefferson County**
    - Area 3 covers **Taylor County**
    - Area 4 covers **Dixie and Levy Counties**

- EDA divides the state of Florida into eleven regional planning councils
    - Apalachee Regional Planning Council covers **Jefferson County**
    - North Central Florida Regional Planning Council covers **Taylor and Dixie Counties**
    - Withlacoochee Regional Planning Council covers **Levy County**

National-level or Gulf Coast regional programs

- **RESTORE Act**: Funded through legal settlements/awards related to the Deepwater Horizon disaster, the program supports Gulf Coast environmental restoration efforts. (www.dep.state.fl.us/deepwaterhorizon/projects_restore_act.htm)
- **U.S. Department of Agriculture**: (www.rd.usda.gov/programs-services)
  - **CO-OPS Cooperatives Initiative**: Supports value-added agricultural cooperatives
  - **Natural Resources Conservation Service**: with an agricultural focus, programs work to improve soil, water, and wildlife quality.
  - **Rural Business Enterprise Grant**: Supports community economic development programs focused on small and emerging enterprises.
  - **Rural Business Opportunity Grant**: Supports economic development planning in rural areas.
  - **Rural Community Development Initiative Grants**: Provides funding focused on rural community economic development
  - **Small Minority Producer Grant**: Provides technical assistance to cooperatives or associations of small, minority agricultural producers
  - **Value-added Producer Grant**: Assists producer-owned businesses to add value to their products in the form of physical change in the product or enhancing/segregating the product.
- **U.S. Economic Development Administration**: Encourages policies and partners around the country to develop initiatives which foster innovation and creative ways to spur economic development. (www.eda.gov/about/)
- **U.S. Environmental Protection Agency-Building Blocks for Sustainable Communities**: Offers a variety of tools to support a community's efforts to achieve their economic and community development goals. (www.epa.gov/smartgrowth/buildingblocks.htm)
- **U.S. Housing and Urban Development**: (http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment)
  - **Neighborhood Stabilization Program**: Provides community stabilization through the purchase and redevelopment of abandoned residential properties.
  - **Renewal Community/Empowerment Zones/ Enterprise Community Initiative**: Geared toward distressed urban and rural areas, it has created opportunities for new businesses, jobs, housing, education, and healthcare for local residents.
  - **Small Cities Community Development Block Grant**: Supports economic development, neighborhood or commercial revitalization, and housing rehabilitation. Florida Department of Economic Opportunity is the state's liaison for facilitating these grants opportunities.

- **Brand USA**: Supports growth in international tourism visitation to the United States. Focusing specifically on the UK and Ireland travel market, USA Discovery program provides an interactive platform for agents to market locales across the U.S. (www.thebrandusa.com)

State and regional level programs

- **Enterprise Florida, Inc.**: Fosters business expansion and job creation among enterprises of all sizes using the collective knowledge and experience base of economic development partners. (www.enterpriseflorida.com)
- **Florida Department of Economic Opportunity**: Administers state and federal-level programs to support economic development. Among DEO's many programs supporting economic development, it provides technical assistance grants for mapping updates to facilitate data-driven economic growth decisions; supports Community Development Block Grant amendments to comprehensive plans; and administers Rural Infrastructure funds for master planning and industrial park development, for example. (www.floridajobs.org)
- **Florida Office of Greenways and Trails (OGT):** Coordinates and provides assistance to implement the Florida Greenways and Trails System Plan. (www.dep.state.fl.us/gwt/grants/)
- **Florida Economic Development Council**: promotes sound economic development policy through education and outreach, advocacy, and state-wide partnerships. (www.fedc.net)
- **Florida Fish & Wildlife Commission's Boating Improvement Program**: Offers financial support to improve boating access through boat ramp development and public launching facilities. (myfwc.com/boating/grant-programs/fbip/)
- **Florida Communities Trust:** Assists communities in protecting important natural resources, providing recreational opportunities and preserving Florida's traditional working waterfronts by funding to acquire land for parks, open space, greenways and projects supporting Florida's seafood harvesting and aquaculture industries. (www.dep.state.fl.us/lands/FL_Communities_Trust/default_cont.htm)
- **Florida Forever:** Serves as Florida's premier conservation and recreation land and conservation easement acquisition program, a blueprint for conserving natural resources and renewing Florida's commitment to conserve the state's natural and cultural heritage. (www.dep.state.fl.us/lands/fl_forever.htm)
- **Florida Recreation Development Assistance Program (FRDAP):** Provides financial assistance to local governments to develop and/or acquire land for public outdoor recreational purposes; the maximum grant request is $200,000. (www.dep.state.fl.us/Parks/OIRS/default.htm)

- **North Florida Economic Development Partnership**: A consortium of 15 counties which provides programs and services such as site selection, marketing, workforce development, research resources, and financing. (www.nflp.org/home.aspx)
- **Regional Development Board**: Provides employment training programs to help residents enter and advance in the workforce; associated with Workforce Florida, Inc. (www.workforceflorida.com/ResourcesLinks/RegionalWorkforceBoards/RWBMap.php)
- **Rural and Family Lands Protection Program:** Protects important agricultural lands through the acquisition of permanent agricultural land conservation easements. (www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Land-Planning-and-Administration-Section/Rural-and-Family-Lands-Protection-Program3)
- **Springs Initiative**: Protects spring water quality and flow in the state through active preservation, restoration, and community education. (www.dep.state.fl.us/springs/initiative.htm)
- **Suwannee River Water Management District**: Offers a handful of water management funding opportunities to protect and preserve water supply and quality along the Suwannee River and its watershed. (www.srwmd.state.fl.us/index.aspx?NID=373)
- **Visit Florida**: offers annual cooperative grant program for projects promoting business marketing and publicizing tourism advantages. (www.visitfloridablog.org/?p=8683)
- **Visit Natural North Florida:** Promotes nature-based tourism through a ten-county regional promotion body funded through the Department of Economic Opportunity. Includes the four Big Bend counties . (www.naturalnorthflorida.com/)
- **Workforce Florida, Inc**.: Strives to diversify the state's economy by focusing on the intersection of job opportunities, statewide partnerships, and performance,. (www.workforceflorida.com)

County-level programs

- **Jefferson County Heritage Roads Program**: Preserves and protects roads of historical and/or aesthetic importance in Jefferson County, fostering a pride of place and tourism. (flheritage.com/markers/markers.cfm?ID=Jefferson)
- **Jefferson County Vision Action Plan**: Launched in 2013, targets economic development, small business development, and tourism as vital priorities. (ouractionplan.org/our-action-plan/).
- **Taylor County Vision 2060**: Adopted in 2008 and awarded an American Planning Association Award of Excellence, the holistic comprehensive plan defines strategic land use planning patterns and economic development plans. (www.taylorcountyvision.org/web-content/index.html)

Looking Ahead: What's Next?

The ideas for growth included here are not an exhaustive list, but rather initial thoughts based on the economic analysis, with hopes to spur more engaged discussion and evaluation across the region. Industries--natural resource based or in other fields--can contribute to strengthening the Big Bend region economically while securing the well-being of the natural resources. As stated repeatedly by local officials, the goal is to sustain the natural resources that support the Big Bend's unique character, community, and economic health and to catalyze opportunities and partnerships that make the region even stronger.

Together with federal and state agencies, there are many separate initiatives underway in the region at any given time. Coordination among the various public and private organizations toward a common long-term vision is the key to successful and sustainable economic development against a backdrop of shared environmental strengths and related concerns that unify the region and the unique challenges and opportunities that make each county distinct in its own way. Collaboration and creation of a regional identity can command the attention of funders and other resources for the area. Further discussion among the region's leaders can help create a common purpose and specific actions.

This is a starting point with opportunities for collaboration that can catalyze on-the-ground action and implementation of specific steps that can strengthen the region's economy, community, and environment. Only then, can the region really thrive.

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Appendices

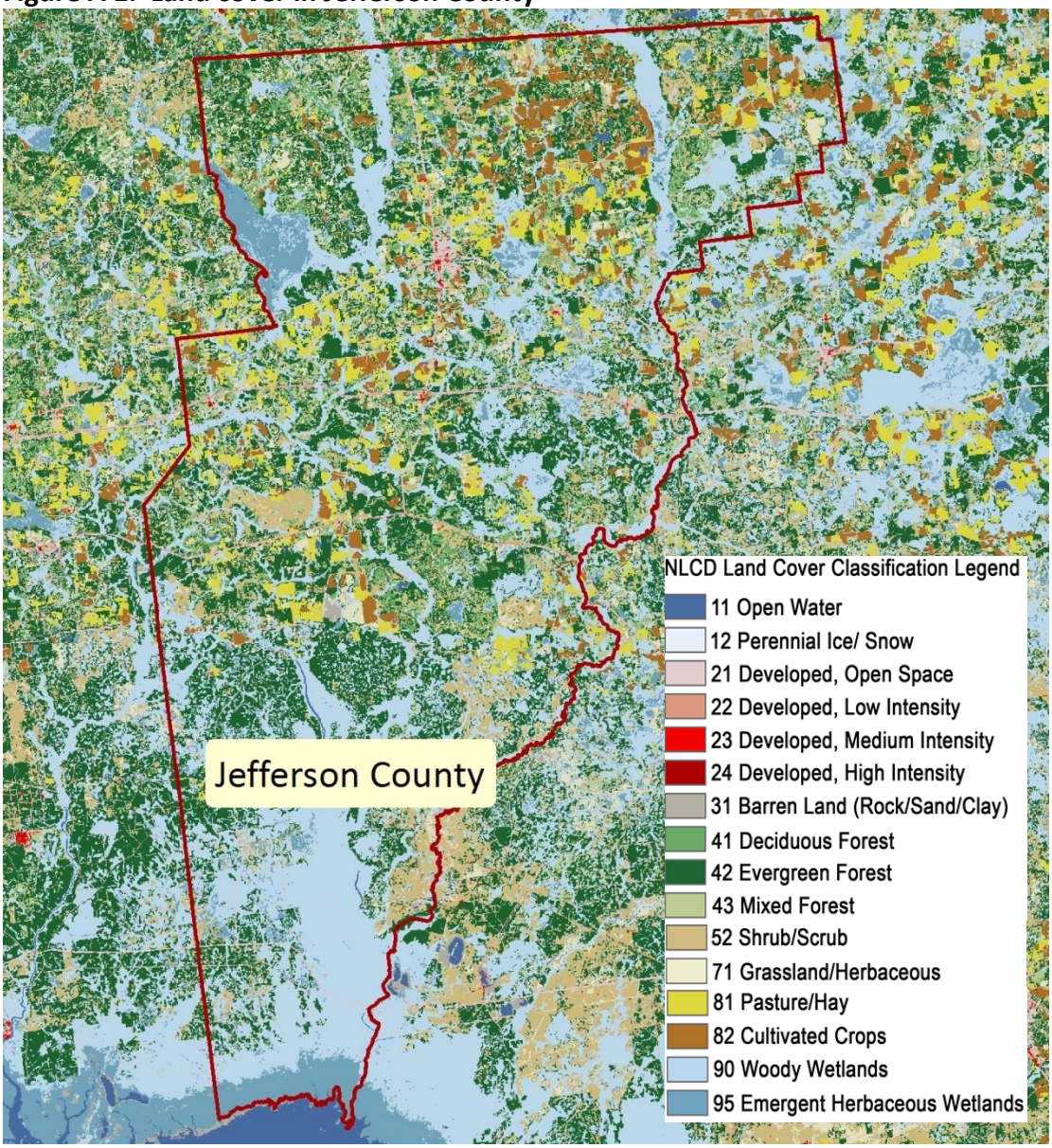
A. **Land cover types by county**

B. **Methodology for estimating economic contributions**

C. **Glossary of industries**

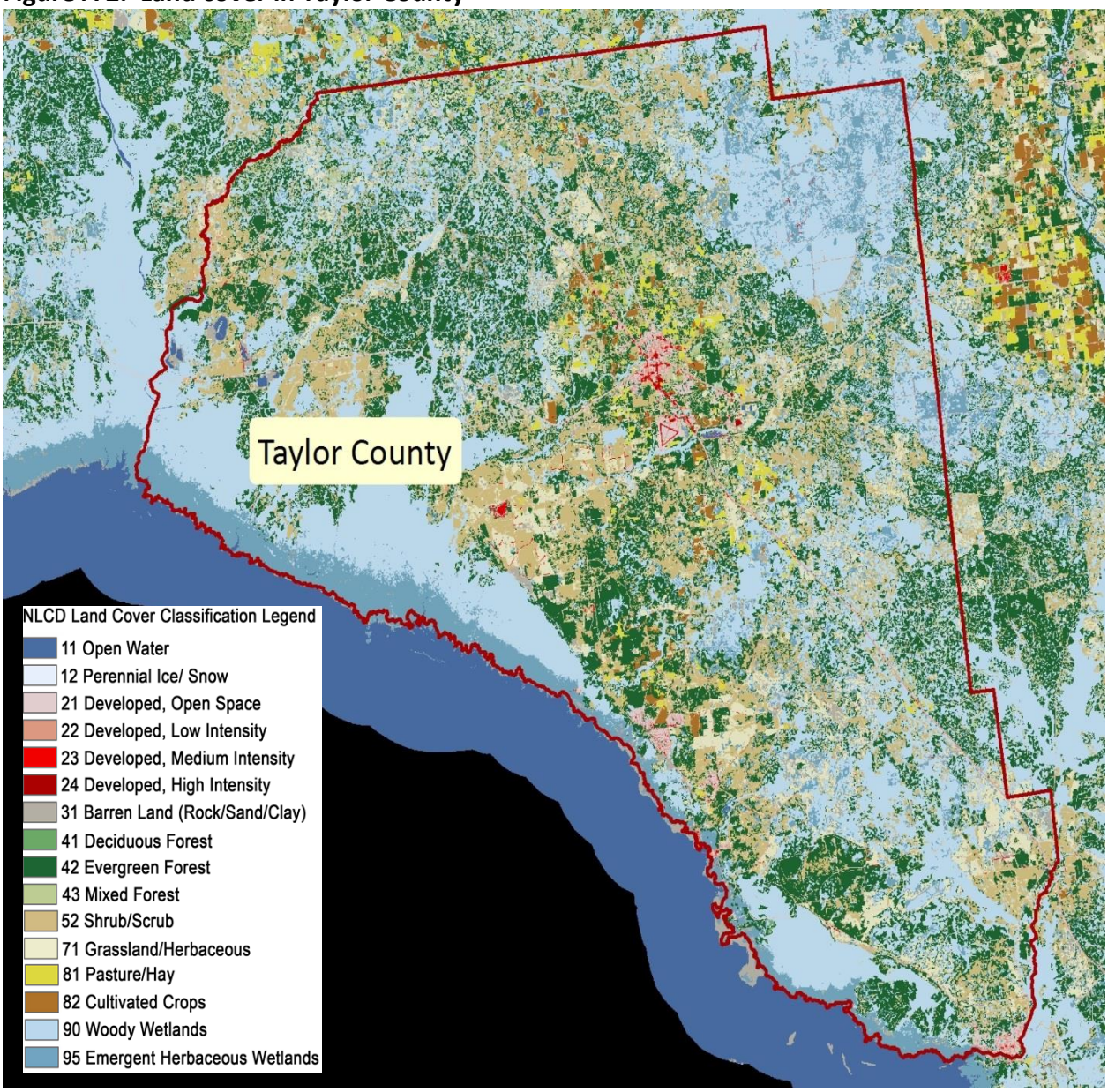
A. Land cover types by county

Figure A 1. Land cover in Jefferson County



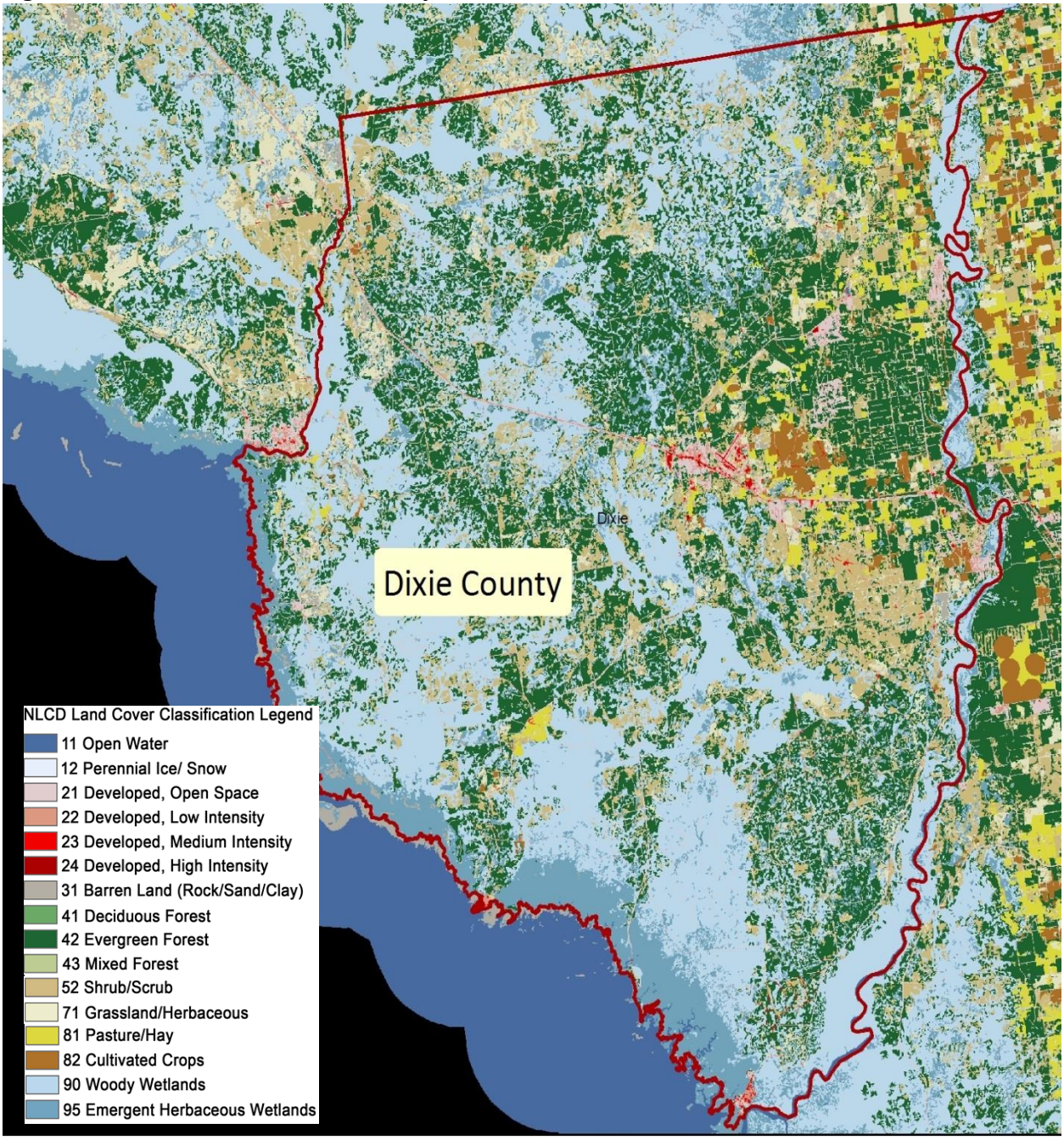
Source: Multi-Resolution Land Characteristics Consortium National land cover database 2011

Figure A 2. Land cover in Taylor County



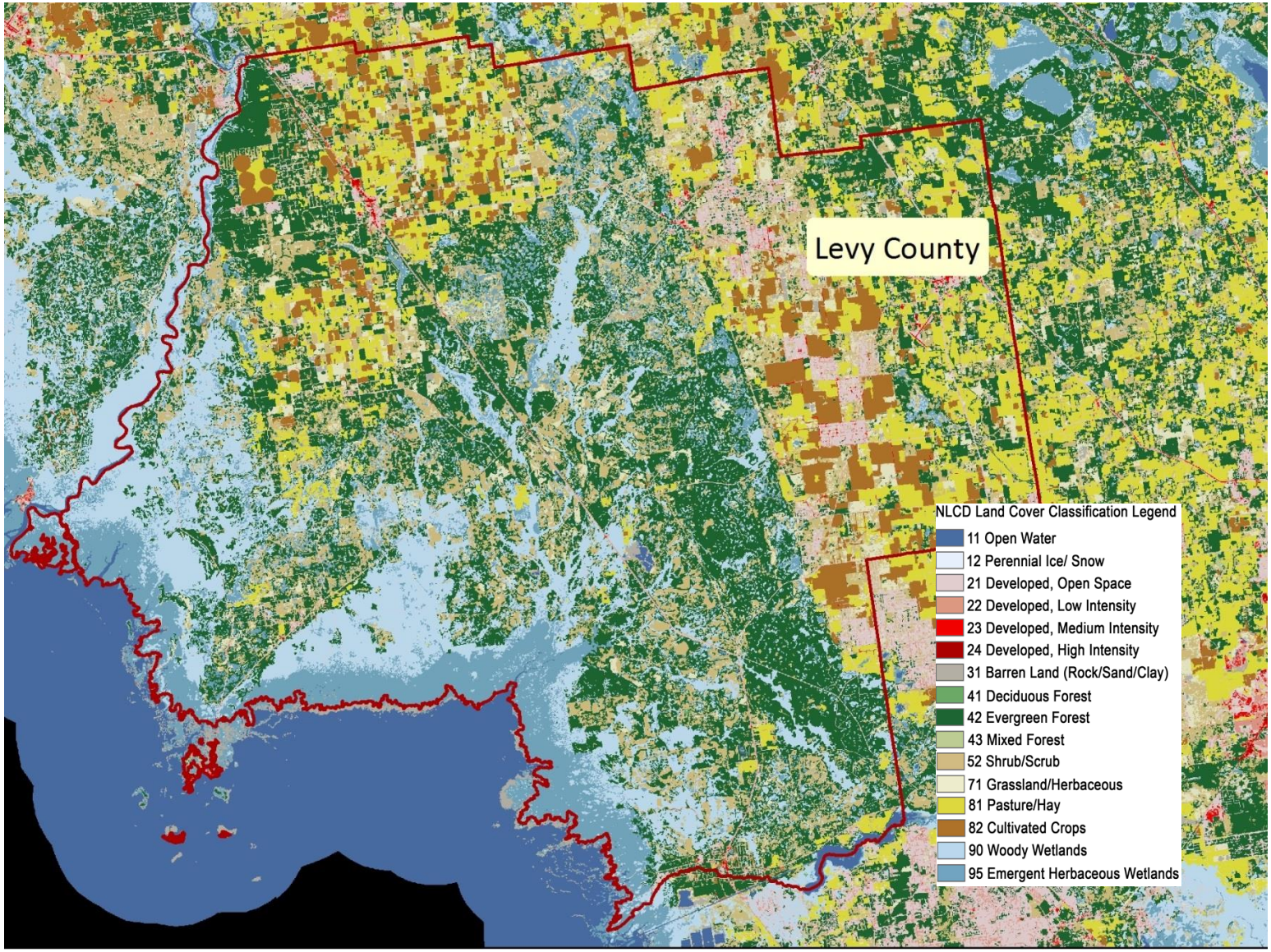
Source: Multi-Resolution Land Characteristics Consortium National land cover database 2011

Figure A 3. Land cover in Dixie County



Source: Multi-Resolution Land Characteristics Consortium National land cover database 2011

Figure A 4. Land cover in Levy County



Source: Multi-Resolution Land Characteristics Consortium National land cover database 2011

B. Methodology for estimating economic contributions

The economic contributions from industry sectors are estimated with an IMPLAN input-output model for the county economies of the Big Bend region. The IMPLAN model was developed by MIG, Inc. originally for use by the U.S. Forest Service. Inherent in each IMPLAN model is the relationship between the economic output of each industry (i.e. sales) and the jobs, income and taxes associated with a given level of output.

Input-output models describe how sales in one industry affect other industries. For example, once a consumer makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks the flow of dollars from the consumer through all of the businesses that are affected, either directly or indirectly.

There are three types of economic contribution: direct, indirect and induced. A **direct contribution** is defined as the economic contribution of the initial purchase made by the consumer (the original retail sale). **Indirect contributions** are the secondary effects generated from a direct contribution, such as the retailer buying additional inventory and the wholesaler and manufacturers buying additional materials. Indirect contributions affect not only the industry being studied, but also the industries that supply the first industry. An **induced contribution** results from the salaries and wages paid by the directly and indirectly affected industries. The employees of these industries spend their income on various goods and services. These expenditures are induced contributions, which, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect, and induced contribution effects sum together to provide the overall economic contribution of the activity under study. As the original retail purchase (direct contribution) goes through round after round of indirect and induced effects, the economic contribution of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original lost retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

This study presents several important measures:

Total Economic Effect – also known as “total output” or “total multiplier effect,” this measure reports the sum of the direct, indirect and induced contributions resulting from the original retail sale. This figure explains the total activity in the economy generated by a retail sale. Another way to look at this figure is, if the activity in question were to disappear and participants did not spend their money elsewhere, the economy would contract by this amount.

Salaries & Wages – this figure reports the total salaries and wages paid in all sectors of the economy as a result of the activity under study. These are not just the paychecks of those employees directly serving recreational visitors or manufacturing their goods, it also includes portions of the paychecks of, for example, the truck driver who delivers food to the restaurants serving recreational users and the accountants who manage the books for companies down the supply chain, etc. This figure is based on the direct, indirect, and induced effects, and is essentially a portion of the total economic effect figure reported in this study.

Jobs – much like Salaries and Wages, this figure reports the total jobs in all sectors of the economy as a result of the activity under study. These are not just the employees directly serving recreational visitors or manufacturing their goods, they also include, for example, the truck driver who delivers food to the restaurants serving recreational users and the accountants who manage the books for companies down the supply chain, etc. This figure is based on direct, indirect, and induced effects.

C. Glossary of Industries

Below are descriptions of selected industry categories that appear throughout the report. The categories are defined by the North American Industry Classification System (NAICS). The classifications are a hierarchical grouping of industries according to their similarity in the processes used to produce goods or services and designated by a 6-digit numerical code (i.e. NAICS code). As a hierarchical system, broad industry groups are comprised of more detailed categories. For example, at the highest level of aggregation, NAICS 11 includes agriculture, forestry, fishing and hunting. Agriculture can be broken down to "111 crop farming" and "112 animal production and aquaculture"; crop farming can be further broken into several types of crops (e.g., "1112 vegetables and melon farming"), and then still further to specific vegetable crops (e.g., "111211 potato farming").

Note that several tables in the report rely on data contained within Implan input-output economic models. These models contain data derived from standard NAICS-based government statistics, however it is used to present additional details that often are suppressed by government agencies for confidentiality reasons when a figure is based on too few businesses. This often occurs in in small counties where only two or three firms fall into a detailed industry sector. Although Implan is based on NAICS categories, its proprietary categorization does not always correspond directly to the NAICS system.

Accommodation and Food Services: The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption. Lodging places include hotels, bed and breakfasts, rooming houses and campgrounds. Food and drinking places include full service and fast-food restaurants, cafeterias, snack bars, caterers, bars, taverns, and nightclubs.

Agriculture: The establishments in this sector are often described as farms, ranches, dairies, greenhouses, nurseries, orchards, or hatcheries. A farm may consist of a single tract of land or a number of separate tracts which may be held under different tenures. For example, one tract may be owned by the farm operator and another rented. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm.

Aquaculture: Classified as a subsector of livestock farming, this industry comprises establishments primarily engaged in the farm raising and production of aquatic animals or plants in controlled or selected aquatic environments. These establishments use some form of intervention in the rearing process to enhance production, such as holding in captivity, regular stocking, feeding, and protecting from predators, pests, and disease. Establishments primarily engaged in the catching or taking of fish and other aquatic animals from their natural habitat are classified in the Fishing sector.

Arts, Entertainment, and Recreation: The Arts, Entertainment, and Recreation sector comprises (1) establishments that are involved in producing, promoting, or participating in live performances, events, or exhibits intended for public viewing; (2) establishments that preserve

and exhibit objects and sites of historical, cultural, or educational interest; and (3) establishments that operate facilities or provide services that enable patrons to participate in recreational activities or pursue amusement, hobby, and leisure-time interests.

Crop Farming: Industries in the Crop Production subsector grow crops mainly for food and fiber. The subsector comprises establishments, such as farms, orchards, groves, greenhouses, and nurseries, primarily engaged in growing crops, plants, vines, or trees and their seeds.

Fishing: This industry comprises establishments primarily engaged in the commercial catching or taking of finfish, shellfish, or miscellaneous marine products from a natural habitat, such as the catching of bluefish, eels, salmon, tuna, clams, crabs, lobsters, mussels, oysters, shrimp, frogs, sea urchins, and turtles.

Forestry: Business operations that grow and harvest timber on a long production cycle (10 years or more. Christmas tree production is classified in the Farm Crop Production subsector). Timber production requires natural forest or suitable areas of land that are available for a long duration. The harvesting of timber (except when done on an extremely small scale) requires specialized machinery unique to the industry.

Livestock Farming: Industries in the Animal Production sector raise or fatten animals for the sale of animals or animal products. The sector includes establishments, such as ranches, farms, and feedlots primarily engaged in keeping, grazing, breeding, or feeding animals. These animals are kept for the products they produce or for eventual sale. The animals are generally raised in various environments, from total confinement or captivity to feeding on an open range pasture.

Manufacturing: The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified as construction. The new product of a manufacturing establishment may be finished in the sense that it is ready for utilization or consumption, or it may be semi-finished to become an input for an establishment engaged in further manufacturing.

Other Services: Other services comprise establishments engaged in providing services not specifically listed elsewhere. Establishments in this sector are primarily engaged in activities such as equipment and machinery repairing, promoting or administering religious activities, grantmaking, advocacy, and providing dry cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.

Paper Manufacturing: Industries in the Paper Manufacturing sector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment. The manufacturing of pulp involves separating the cellulose fibers from

other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and includes coating and laminating activities.

Professional, Scientific, and Technical Services: The sector comprises establishments that provide specialized services that require a high degree of expertise and training and serve clients in a variety of industries and, in some cases, to households. Activities performed include: legal advice and representation; accounting, bookkeeping, and payroll services; architectural, engineering, and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific, and technical services.

Support Activities for Agriculture and Forestry: Industries that provide support services that are an essential part of agricultural and forestry production. Crop production support services include cotton ginning, soil preparation, planting, harvesting, farm labor contractors and farm management services. Livestock production support services include breeding services for animals, pedigree record services, boarding horses, dairy herd improvement activities, livestock spraying, and sheep dipping and shearing. Forestry support services comprises establishments primarily engaged in activities related to timber production (estimating timber, pest control, reforestation, preparing management plans), wood technology, forestry economics and marketing, and forest protection.

Trade and Transportation: This broad category includes retailers, wholesalers, warehouses and transportation services. Retail operations include both retail stores that have a fixed location and non-store retailers that sell from mobile outlets, engage in door-to-door sales, or provide home delivery of products such as newspaper routes and home heating oil deliveries. Wholesalers sell merchandise to other businesses and normally operate from a warehouse or office. These warehouses and offices are characterized by having little or no merchandise display. In addition, neither the design nor the location of the premises is intended to solicit walk-in traffic. The transportation sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and related support activities. The type of equipment depends on the mode of transportation. The modes of transportation are air, rail, water, road, and pipeline. Businesses that operate warehousing establishments are distinguished from wholesalers in that the warehouse establishments do not sell the goods that they store.

Wood Products Manufacturing: Industries in the Wood Product Manufacturing sector manufacture lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile homes), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers.