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Economic Contributions of Agriculture, Natural Resources, and Related Industries in Florida in 2009 [1]

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Executive Summary

Agriculture, natural resources, and related industries remain a significant force in the economy of Florida, and it is important to recognize their economic contributions for informed public policy. The economic contributions of these industries were evaluated for 2009 to update previous reports and provide further information on economic trends in the wake of the historic global recession of 2007–2009. This analysis was conducted using the *IMPLAN* regional economic modeling system and associated state and county databases (MIG, Inc.) to estimate economic multipliers that capture the additional economic activity generated by re-spending of income in the local economy arising from new final demand. The set of industry sectors included in this analysis was selected to represent a broad array of linked activities for commodity production, manufacturing, distribution and supporting services. Economic contribution results for 2009 included the following:

- Industry output or sales revenues of $126.67 billion, and total output impacts of $201.84 billion, including indirect/induced multiplier effects arising from foreign and domestic exports of $49.78 billion
- Direct employment of 1.30 million full-time and part-time jobs, representing 13.4 percent of all jobs in the state, and total employment impacts (including multiplier effects) of 1.94 million full-time and part-time jobs, which represents 20.0 percent of all jobs
- Direct value added of $60.64 billion, representing 8.5 percent of Florida's Gross State Product, and total value added impacts (including multiplier effects) of $107.21 billion, representing 15.1 percent of Gross State Product
- Total labor income impacts of $68.15 billion for employee wages and benefits and business proprietor income, and total property income impacts of $27.24 billion for rents, interest, royalties, and dividends
- Total indirect business tax impacts of $11.83 billion paid to local, state, and federal governments

Total employment and value added impacts were largest for the *Food and Kindred Products Distribution* industry group (1.17 million jobs; $58.06 billion), followed by *Agricultural Inputs and Services* (269,398 jobs; $14.23 billion), *Crop, Livestock, Forestry, and Fisheries Production* (211,007 jobs; $10.08 billion), *Food and Kindred Product Manufacturing* (147,424 jobs; $13.66 billion), *Forest Product Manufacturing*

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(66,601 jobs; $5.73 billion), *Mining* (41,054 jobs; $3.06 billion), and *Nature-based Recreation* (41,451 jobs; $2.40 billion). Excluding the *Food and Kindred Products Distribution* industry group, which includes food service establishments (restaurants and bars) and retail food stores, total economic impacts represented 6.9 percent of Gross State Product and 8.0 percent of total state employment.

Economic contributions were also evaluated for several commodity groups that have close linkages between production and processing/manufacturing sectors. The total value added and employment contributions were highest for the *Environmental Horticulture* group ($8.45 billion; 177,534 jobs), followed by *Fruit and Vegetable Farming and Processing* ($6.96 billion; 100,955 jobs), *Forestry and Forest Products* ($6.56 billion; 80,731 jobs), *Livestock and Dairy Farming and Animal Products Manufacturing* ($906 million; 20,803 jobs), *Sugarcane Farming and Refined Sugar Manufacturing* ($505 million; 17,092 jobs), *Fishing and Seafood Products* ($277 million; 7,663 jobs), and *Grain and Oilseed Farming and Processing* ($231 million; 3,015 jobs).

The makeup of agriculture, natural resources, and related industries varies dramatically across the state of Florida due to differences in climate, natural resource endowments, population, and settlement patterns. The largest economic contributions occurred in the major metro areas such as Miami–Ft. Lauderdale, Orlando, Tampa–St. Petersburg, Sarasota–Bradenton, and Jacksonville, where large demands for food and kindred products and a large workforce available for the industry co-exist. The eight largest counties in terms of total value added and employment impacts were Miami-Dade ($13.40 billion; 222,060 jobs), Hillsborough ($11.17 billion; 176,577 jobs), Orange ($8.95 billion; 165,063 jobs), Duval ($8.60 billion; 116,138 jobs), Broward ($8.47 billion; 153,557 jobs), Palm Beach ($7.83 billion; 147,681 jobs), Polk ($6.18 billion; 95,040 jobs), and Pinellas ($4.89 billion; 95,281 jobs). However, the economic contributions are also relatively important in rural areas, where agriculture and related industries may represent a higher share of total economic activity. Total value added impacts represented over 50 percent of Gross Regional Product in 3 Florida counties (Hamilton, Hardee, Glades) and 30–49 percent in 10 counties, while employment impacts represented over 50 percent of total employment in 4 Florida counties (Dixie, Hardee, DeSoto, Glades) and 30–49 percent in 10 counties. Additional detailed information on economic contributions in individual Florida counties is available at http://www.fred.ifas.ufl.edu/economic-impact-analysis/Florida-county-profiles-2009.pdf.

Direct employment in Florida's agriculture, natural resources, and related industries grew from 1.252 million jobs in 2001 to a peak of 1.382 million jobs in 2008, and then declined to 1.305 million jobs in 2009 as a result of the lingering effects of the global recession. This represented average annual job growth of 0.5 percent over the entire nine-year period, and 1.5 percent for the 2001–2007 period preceding the recession. Surprisingly, total employment impacts actually increased to the highest level ever in 2009, reflecting a dramatic increase in exports of Florida products to domestic and world markets and representing a 1.8 percent average annual growth during 2001–2009. Total value added impacts grew at a 4.9 percent average annual rate during 2001–2009, in inflation-adjusted terms. Among industry groups, average annual growth in value added impacts during 2001–2009 was highest for *Agricultural Inputs and Services* (14.9%), followed by Mining (11.5%) and *Food and Kindred Products Distribution* (6.7%), while groups with low or negative growth during this period were *Crop, Livestock, Fisheries, and Forestry Production* (–1.4%), *Nature-based Recreation* (–2.0%), and *Food and Kindred Product Manufacturing* (1.6%).

Introduction

Agriculture, natural resources, and related industries represent a major industry group in terms of generating employment and income, and producing goods and services that contribute to economic growth and development of Florida, and the United States. These industries utilize natural resources provided by the state's 24 million acres (36,000 square miles) of forests, croplands, and ranches to produce basic food, fiber, and mineral commodities. The unrefined commodities are converted into finished products by the food and kindred product manufacturing industries. Finished goods then move through the wholesale and retail distribution chain to final consumers or to other industry sectors as intermediate goods for further value-added processing. These industries are also linked to a broad array of allied suppliers that provide production inputs and supporting services. In addition, natural landscapes and other open or undeveloped lands provide an array of opportunities for nature-based recreation and eco-tourism. Thus, the chain of agricultural and related industry activities encompasses the whole of the concept "from farm to table."

Assessment of the economic contributions of regional industry activity is integral to making informed public-policy decisions regarding future economic and community development, job creation, environmental regulation, labor and human resources, and taxation. This report provides estimates of the economic contributions to the state of Florida in 2009 by a set of broadly defined industries comprising agriculture, natural resources, and related activities. It updates and continues a series of annual studies done previously for 2006, 2007, and 2008 (Hodges and Rahmani 2009, 2010; Hodges, Rahmani, and Mulkey 2008).

Methods

Data for this analysis were obtained from the *IMPLAN3* database for the state of Florida and its counties for 2001–2009 (MIG, Inc.), which were derived from the National Income and Product Accounts for the United States (United States Department of Commerce, Bureau of Economic Analysis), the *Quarterly Census of Employment and Wages* (United States Bureau of Labor Statistics), and other sources. Over 90 individual industry sectors in the *IMPLAN* system were identified as related to agriculture and natural resource commodity production, input supply and supporting services, food and kindred product manufacturing, forest product manufacturing, food and kindred product distribution, and nature-based recreation. A list of industry groups and individual sectors included in the analysis is shown in Table 1. Note that some industry sectors in this analysis were reclassified from their original major industry group designation under the *North American Industry Classification System* (NAICS) to be included as part of the broadly defined agriculture-related industries categories. The rationale for including processing or manufacturing industries in this analysis is that they share a common dependence upon the natural resource base, and would not exist in the state if not for the basic production activities. Food and kindred product distribution sectors, such as wholesalers, food stores, and restaurants, although not strictly dependent upon natural resources, represent the end-point of the market chain for final consumers.

Economic contributions were also evaluated for several recognizable commodity groups that have linkages between production and processing/manufacturing sectors, including environmental horticulture (nursery and greenhouse production, landscape services, and retail lawn-and-garden centers); fruit and vegetable farming and processing; forestry, logging, and forest product manufacturing; sugarcane and refined sugar manufacturing; livestock and animal products manufacturing; and fishing and seafood products.

The total regional economic impacts for each sector were estimated using models developed with the *IMPLAN3* software for social accounting and impact analysis (MIG, Inc.). This system enables construction of input-output models and social accounting matrices that represent the structure of a regional economy in terms of transactions among industry sectors, households, and governments. The *IMPLAN* model includes accounts for industrial commodity production, employment, labor and property income, household and institutional consumption, domestic and international trade (imports, exports), government taxes, transfer payments such as welfare and retirement, and capital investment. Economic multipliers are calculated for each industry to estimate the secondary effects of new final demand that generates further economic activity as it is re-spent in the local economy (Miller and Blair 2009). Indirect effects multipliers represent the economic activity generated in the supply chain through the purchase of intermediate inputs from vendor firms, while induced effects multipliers represent the impacts of spending by industry employee households and governments. The indirect and induced multipliers were applied only to foreign and domestic exports, or sales to customers visiting from outside the state of Florida, which represent new money flowing into the regional economy. The total economic impacts are calculated as the sum of direct effects, plus indirect and induced effects. Therefore, while the estimates of this analysis are referred to as “economic impacts,” these values may be better understood as “economic contributions” because they represent the ongoing economic activity of existing industries, rather than a net change in activity resulting from external influences (Watson et al. 2007).

Measures of economic impacts reported here include output or revenue; value added; employment (including full-time, part-time, and seasonal positions); labor income; property income; and indirect business taxes paid to local, state, and federal governments. Value added is a broad measure of net economic activity that is comparable to the Gross Domestic Product (GDP), and represents the sum of labor and other property income, indirect business taxes, and capital consumption (depreciation). Value added also is equivalent to the difference between industry revenues and intermediate inputs purchased from other sectors. A glossary of economic impact analysis terminology is provided in the Appendix.

Regional economic models were developed for the state of Florida and for all 67 counties in the state using the *IMPLAN3* software and Florida state/county data package for 2009 (MIG, Inc.). All model parameters were kept at default settings, with econometrically estimated regional purchase coefficients representing the share of commodities purchased from local sources, and social/institutional accounts included for households; local, state, and federal governments; and capital investment.

Summary information was developed for the state of Florida, all 67 counties, and 9 multi-county regions as shown in Figure 6. These functional economic areas represent core metropolitan areas and adjacent nonmetropolitan counties linked by employee commuting patterns, as defined by the United States Bureau of Economic Analysis (Johnson and Kort 2004). It should be noted that some Georgia counties included in the northern Florida regions were not evaluated in this analysis. Due to differences in trade flows and accounting adjustments at the state and county levels, slight discrepancies in regional results were reconciled by forcing county and regional estimates to match with state totals.

For some activities that were not specifically identified in *IMPLAN*, values were estimated as a share of their parent sector based on data from the 2007 Economic Census and previous special studies: *Landscape services* and *Pest control services* were 49 percent and 15 percent, respectively, of *Services to buildings* (sector 388); *Wholesale food distribution* was 20 percent of *Wholesale trade* (sector 319); *Retail lawn-and-garden centers* were 19 percent of *Building materials and garden stores* (sector 323); and *Golf courses* and *Recreational fishing* were 48 percent and 10 percent, respectively, of *Amusement and recreation services* (sector 410).

Employment figures reported represent all full-time, part-time, and temporary or seasonal jobs, rather than full-time equivalents. All monetary values were expressed in 2009 U.S. dollars using the mid-year (July) indices for the Gross Domestic Product (GDP) Implicit Price Deflator, which accounts for the effects of price changes in the measurement of GDP (United States Department of Commerce). Note that *IMPLAN* data were not available for 2005. Note also that results for 2001–2008 were revised in light of new information, so findings presented here do not necessarily match those previously reported (Hodges and Rahmani 2009, 2010; Hodges, Rahmani, and Mulkey 2008).

Results

Economic Contributions by Industry Groups and Sectors

Economic contributions by major industry groups and specific industry sectors in Florida in 2009 are shown in Table 1 and summarized in Figures 1–3. The industries are categorized in seven major groups:

1. *Crop, Livestock, Forestry, and Fisheries Production*
2. *Mining*
3. *Agricultural Inputs and Services*
4. *Food and Kindred Products Manufacturing*
5. *Forest Products Manufacturing*
6. *Food and Kindred Products Distribution*
7. *Nature-based Recreation*

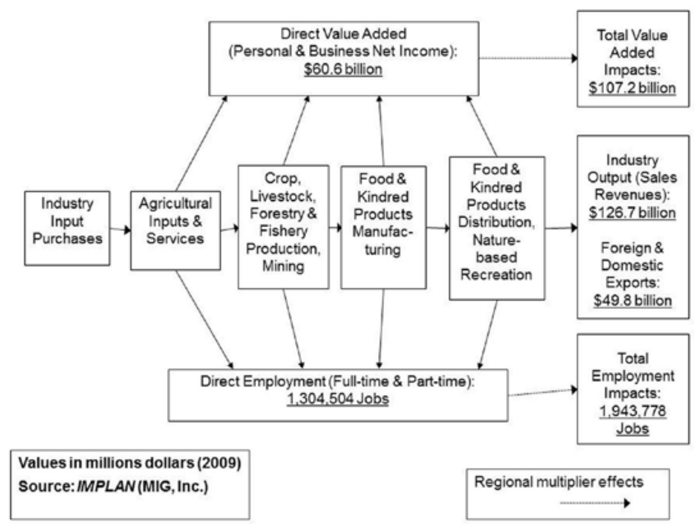

Figure 1. Structure of economic activity of agriculture, natural resources, and related industries in Florida, 2009

Results are reported below for each major group; for all groups combined; and for all groups, excluding *Food and Kindred Products Distribution*.

Direct industry output or sales in 2009 were $126.67 billion. Foreign and domestic exports of goods and services to customers outside of Florida totaled $49.78 billion. As a result of the indirect and induced multiplier effects arising from exports, an additional $75 billion in output was generated in the economy, mostly in other economic sectors. The total output impacts, including direct, indirect, and induced effects, were estimated at $201.84 billion. Direct employment in these industries was 1,304,504 full-time and part-time jobs, and total employment impacts (including multiplier effects) were estimated at 1,943,778 jobs. The direct value added impact of these industries was $60.64 billion, and total value added impact was $107.21 billion. The total labor (earned) income impact of employee wages and benefits and business proprietor income was $68.15 billion. Total property income impacts, such as rents, interest, royalties, and dividends, amounted to $27.24 billion. Total indirect business tax impacts paid to local, state, and federal governments were $11.83 billion.

Crop, Livestock, Forestry, and Fisheries Production includes sectors for the production of basic unrefined food and fiber commodities. In 2009, total output of these sectors was $9.81 billion; exports were $6.03 billion, and output impacts were $18.29 billion (Table 1; Figure 2). Direct value added was $4.80 billion and value added impacts were $10.08 billion. Direct employment was 131,714 jobs and total employment impacts were 211,007 jobs (Figure 3). Labor income impacts were $6.86 billion, other property income impacts were $2.63 billion, and indirect business tax impacts were $587 million. Among individual industry sectors in this group, the highest value added impacts were for *Fruit farming* ($2.33 billion); *Greenhouse, nursery, and floriculture production* ($2.03 billion); *Vegetable and melon farming* ($1.93 billion); and *Support activities for agriculture and forestry* (1.75 billion). The highest employment impacts were for *Support activities for agriculture and forestry* (59,392 jobs); *Fruit farming* (36,485 jobs); *Greenhouse, nursery, and floriculture production* (32,516 jobs); and *Vegetable and melon farming* (29,220 jobs). Large value added and employment impacts were also realized for the sectors of *Forestry and timber tracts* ($592 million; 8,660 jobs), *Sugarcane farming* ($321 million; 15,321 jobs), and *Commercial logging* ($241million; 5,470 jobs). Value added impacts of $100–$200 million were observed for *Commercial fishing*, *Cattle ranching and farming*, *Poultry and egg production*, *Dairy cattle and milk production*, and *All other crop farming*.

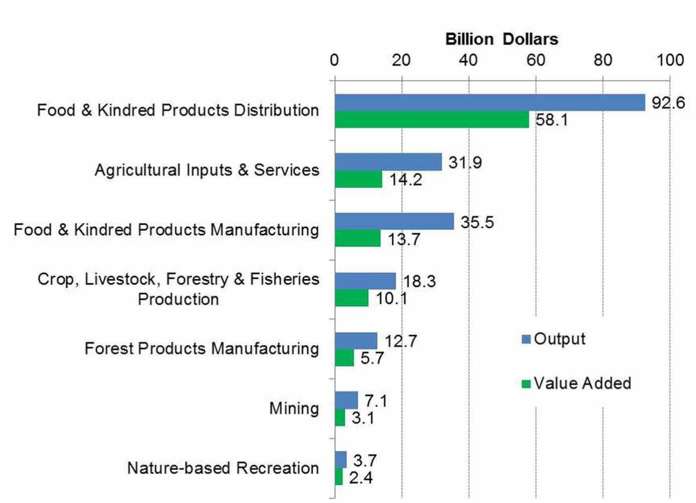

Figure 2. Output and value added contributions of agriculture, natural resources, and related industries in Florida, 2009. Source: IMPLAN data for Florida (Estimates include regional multiplier effects)

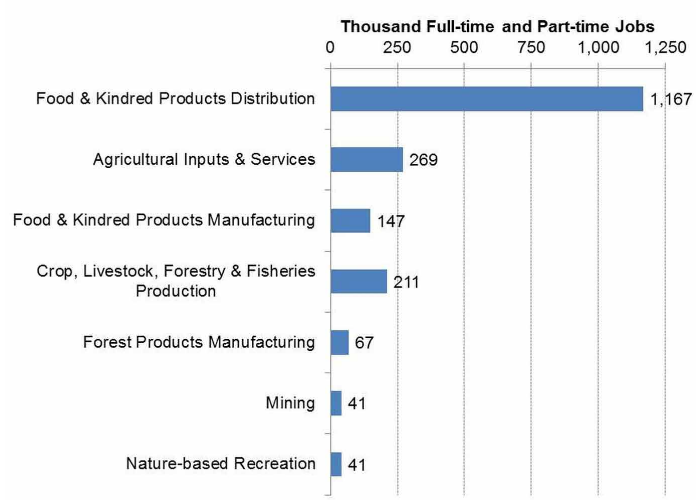

Figure 3. Employment contributions of agriculture, natural resources, and related industries in Florida, 2009. Source: IMPLAN data for Florida (Estimates include regional multiplier effects)

The ***Agricultural Inputs and Services*** group includes a variety of sectors providing inputs or support services for agricultural operations or landscape management. Output impacts in 2009 by this industry group totaled $31.92 billion, including exports of $977 billion (Table 1; Figure 2). Direct value added was $5.48 billion and value added impacts were $14.23 billion. Direct employment was 153,123 jobs and employment impacts were 269,398 jobs (Figure 3). Labor income impacts were $9.54 billion, other property income impacts were $3.74 billion, and indirect business tax impacts were $960 million. Among leading sectors in this group, *Landscape services* had value added impacts of $5.51 billion and employment impacts of 130,292 jobs, followed by *Fertilizer manufacturing* ($5.64 billion; 65,933 jobs), *Pest control services* ($1.69 billion; 39,885 jobs), *Veterinary services* ($1.19 billion; 31,054 jobs), and *Pesticide and other agricultural chemical manufacturing* ($150 million; 1,599 jobs). Other minor sectors in this group included *Farm machinery and equipment manufacturing*, and *Lawn and garden equipment manufacturing*.

Mining relies upon natural resources for the extraction of basic mineral commodities such as oil, natural gas, stone, sand, gravel, clay, phosphate, and a variety of metals. In 2009, the Mining industries in Florida collectively had direct output of $3.98 billion; exports of $2.14 billion; output impacts of $7.08 billion; direct employment of 15,446 jobs; employment impacts of 41,054 jobs; direct value added of $1.14 billion; value added impacts of $3.06 billion; labor income impacts of $1.67 billion; other property income impacts of $1.16 billion; and indirect business tax impacts of $225 million (Table 1; Figures 2 and 3). The largest individual sector was *Extraction of oil and* *natural gas*, which had value added impacts of $1.29 billion and generated employment impacts of 22,919 jobs. Other individual sectors with significant value added and employment impacts included *Mining and quarrying of other non-metallic minerals* ($759 million; 6,687 jobs), *Mining and quarrying of stone* ($346 million; 3,942 jobs), *Mining and quarrying of sand, gravel, and clay* ($247 million; 3,166 jobs), and *Drilling of oil and gas wells* ($228 million; 2,819 jobs). Other minor sectors in this industry group were *Support activities for oil and gas operations*; *Mining gold, silver, and other metal ore*; and *Support activities for other mining*.

Food and Kindred Products Manufacturing industries convert unrefined agricultural commodities to products for final consumption or use. In 2009, this group of industries in Florida had direct output of $22.40 billion; exports of $10.87 billion; output impacts of $35.54 billion; direct employment of 40,795 jobs; total employment impacts of 147,424 jobs; direct value added of $5.73 billion; value added impacts of $13.66 billion; labor income impacts of $7.33 billion; other property income impacts of $4.50 billion; and indirect business tax impacts of $1.83 billion (Table 1; Figures 2 and 3). This large industry group included 33 individual sectors, of which the highest value added and employment impacts were *Soft drink and ice manufacturing* ($3.94 billion; 51,946 jobs); *Tobacco product manufacturing* ($2.73 billion; 8,514 jobs); *Fruit and vegetable canning, pickling, and drying* ($1.72 billion; 23,330 jobs); *Breweries* ($1.13 billion; 10,174 jobs); *Frozen Food Manufacturing* ($968 million; 12,664 jobs); and *Other animal food manufacturing* ($625 million; 7,590 jobs). Other sectors with significant value added impacts included *Distilleries* ($397 million); *Bread and bakery product manufacturing* ($322 million); *All other food manufacturing* ($202 million); *Flour milling and malt manufacturing* ($191 million); *Sugarcane milling and refining* ($185 million); *Fluid milk and butter manufacturing* ($176 million); and *Coffee and tea manufacturing* ($165 million).

Forest Products Manufacturing is a group of industries for the processing of raw timber or wood into finished wood and paper products. In 2009, this industry group had direct output valued at $6.78 billion; exports of $4.61 billion; output impacts of $12.73 billion; direct employment of 18,790 jobs; employment impacts of 66,601 jobs; direct value added of $2.14 billion; value added impacts of $5.73 billion; labor income impacts of $3.45 billion; other property income impacts of $1.90 billion; and indirect business tax impacts of $380 million (Table 1; Figures 2 and 3). Leading sectors within this group in terms of value added and employment impacts were *Paper mills* ($1.14 billion; 12,813 jobs), *Sanitary paper products manufacturing* ($1.09 billion; 9,838 jobs), *Paperboard container manufacturing* ($949 million; 11,965 jobs), *Paperboard mills* ($664 million; 6,906 jobs), *Pulp mills* ($533 million; 6,085 jobs), and *Stationary product manufacturing* ($249 million; 3,183 jobs). Other sectors with significant value added impacts included *Engineered wood member and truss manufacturing* ($217 million), *Coated and laminated paper packaging paper and plastics film manufacturing* ($170 million), *Wood window and door manufacturing* ($168 million), and *Sawmills and wood preservation* ($152 million).

Nature-based Recreation includes recreational activities generally tied to natural resources or managed landscapes, such as golf, recreational fishing, and hunting and trapping. In 2009, this industry group in Florida had total output of $1.86 billion; exports or sales to Florida visitors of $999 million; output impacts of $3.70 billion; direct employment of 25,398 jobs; employment impacts of 41,451 jobs; direct value added of $1.24 billion; value added impacts of $2.40 billion; labor income impacts of $1.53 billion; other property income impacts of $646 million; and indirect business tax impacts of $231 million (Table 1; Figures 2 and 3). Among individual sectors, *Golf courses* had value added impacts of $1.92 billion and employment impacts of 33,216 jobs, followed by *Recreational fishing* ($400 million; 6,920 jobs) and *Commercial hunting and trapping* ($84 million; 1,315 jobs).

Food and Kindred Products Distribution includes activities for wholesale and retail trade in agricultural and related products. This large group of industry sectors is only indirectly related to agriculture and natural resources because it serves to deliver products to final consumers, but it is included here for perspective on the scope of the complex market chain for food and kindred products. In 2009, this industry group in Florida had total output of $64.64 billion; exports of $15.37 billion; output impacts of $92.58 billion; direct employment of 919,239 jobs; employment impacts of 1,166,842 jobs; direct value added of $40.13 billion; value added impacts of $58.06 billion; labor income impacts of $37.78 billion; other property income impacts of $12.67 billion; and indirect business tax impacts of $7.62 billion (Table 1; Figures 2 and 3). Collectively, this group represented about 54 percent of total value added impacts and 60 percent of employment impacts for all industries defined in this report. Among individual sectors within this group, *Food service establishments and drinking places* (restaurants and bars) had by far the greatest value added impacts ($32.88 billion) and employment impacts (797,657 jobs), followed by *Wholesale trade in food and kindred products* ($13.57 billion; 140,584 jobs), *Food and beverage stores* ($10.71 billion; 213,875 jobs), and *Retail lawn and garden centers* ($902 million; 14,726 jobs).

Excluding the sectors for *Food and Kindred Products Distribution*, **total economic values for agriculture, natural resources, and related industries** were a direct output of $62.03 billion; exports of $34.41 billion; output impacts of $109.26 billion; direct employment of 385,265; employment impacts of 776,936 jobs; direct value added of $20.51 billion; value added impacts of $49.15 billion; labor income impacts of $30.37 billion; property income impacts of $14.57 billion; and indirect business tax impacts of $4.21 billion (subtotal in Table 1).

Economic Contributions by Commodity Group

In addition to the industry groups noted above, economic contributions were also evaluated for groups of food, fiber, and mineral commodities having identifiable market chain linkages between producers, manufacturers, and service sectors. In this section, some sectors are regrouped to reflect these linkages, with results summarized in Figures 4 and 5. *Environmental Horticulture*, which includes the sectors *Nursery and greenhouse production*, *Landscape services*, and *Retail lawn and garden centers*, had combined value added impacts of $8.45 billion and employment impacts of 177,534 jobs. *Fruit and Vegetable Farming and Processing*, including sectors for *Fruit farming*; *Vegetable and melon farming*; *Frozen food manufacturing*; and *Fruit and vegetable canning, pickling, and drying*, had combined value added impacts of $6.96 billion and employment impacts of 100,955 jobs. *Forestry and Forest Products*, including the sectors *Forestry and timber tracts* and *Logging* as well as 16 forest product manufacturing sectors, had combined value added impacts of $6.56 billion and employment impacts of 80,731 jobs. *Livestock and Dairy Farming and Animal Products Manufacturing*, including the production sectors *Beef cattle ranching and farming*, *Dairy cattle and milk production*, *Poultry and egg production*, *Animal production except cattle and poultry*, *Animal slaughtering*, *Poultry processing*, *Cheese manufacturing*, and *Ice cream manufacturing*, had combined value added impacts of $906 million and employment impacts of 20,803 jobs. *Sugarcane Farming and Refined Sugar Manufacturing* had combined value added impacts of $505 million and employment impacts of 17,092 jobs. *Fishing and Seafood Products* combined had value added impacts of $277 million and employment impacts of 7,663 jobs. The groups comprising *Grain and Oilseed Farming and Processing* had combined value added and employment impacts of $231 million and 3,015 jobs, respectively.

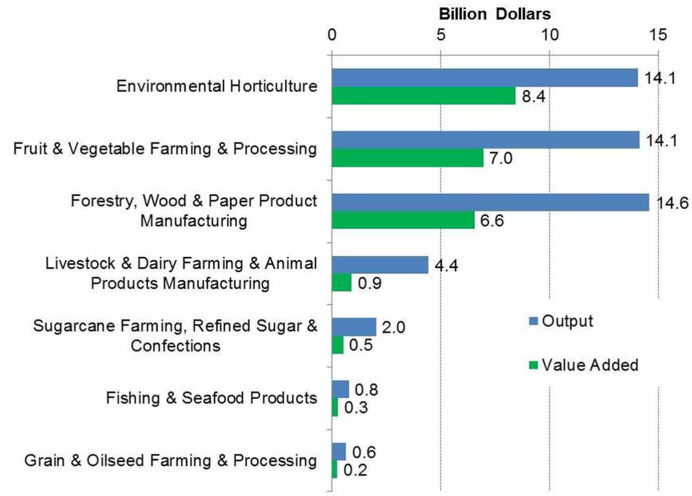

Figure 4. Output and value added contributions of food and fiber commodity groups in Florida, 2009. Source: IMPLAN data for Florida (Estimates include regional multiplier effects)

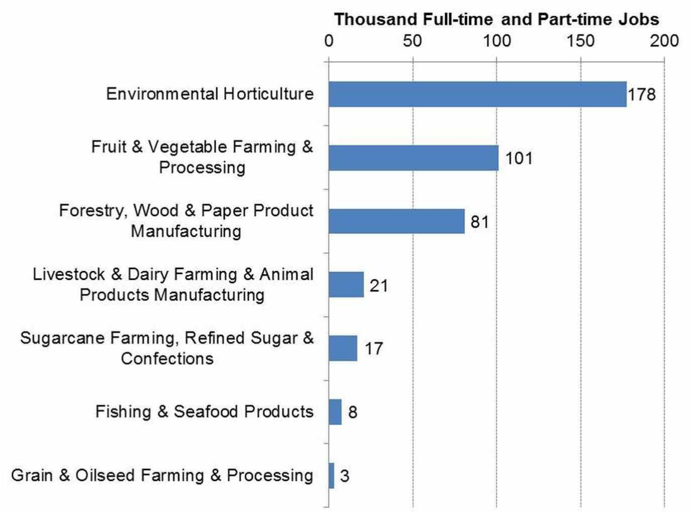

Figure 5. Employment contributions of food and fiber commodity groups in Florida, 2009. Source: IMPLAN data for Florida (Estimates include regional multiplier effects)

Economic Contributions in Florida Regions and Counties

Regional impacts of agriculture, natural resources, and related manufacturing, distribution, and service industries in 2009 were evaluated for all 67 Florida counties and each of the nine multi-county economic regions shown in Figure 6, with results summarized in Table 2**,** Figures 7 and 8. The region with the highest value added and employment impacts was Miami–Ft. Lauderdale ($34.77 billion; 621,150 jobs), followed by Orlando ($25.61 billion; 477,963 jobs), Tampa–St. Petersburg ($17.47 billion; 305,684 jobs), Jacksonville ($11.20 billion; 163,025 jobs), Sarasota–Bradenton ($9.20 billion; 184,975 jobs), Pensacola ($2.78 billion; 59,479 jobs), Gainesville ($2.67 billion; 58,605 jobs), Tallahassee ($2.19 billion; 44,789 jobs), and Panama City ($1.31 billion; 28,086 jobs).

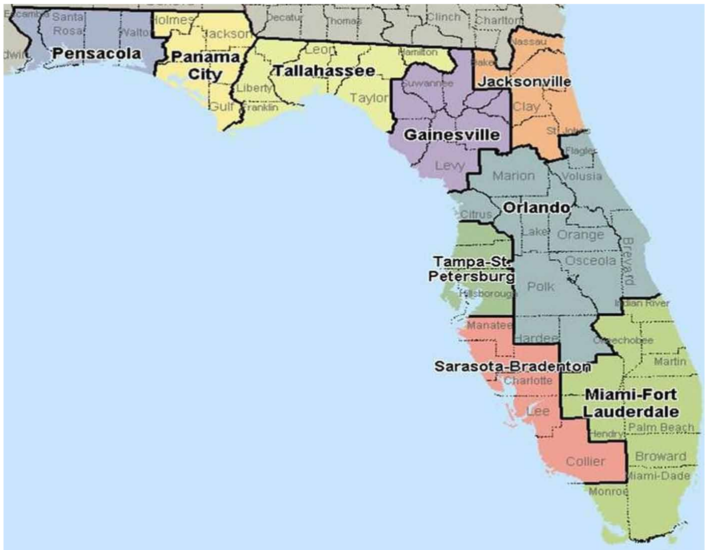

Figure 6. Functional economic regions of Florida. Source: Adapted from United States Commerce Department, Bureau of Economic Analysis (Johnson and Kort 2004)

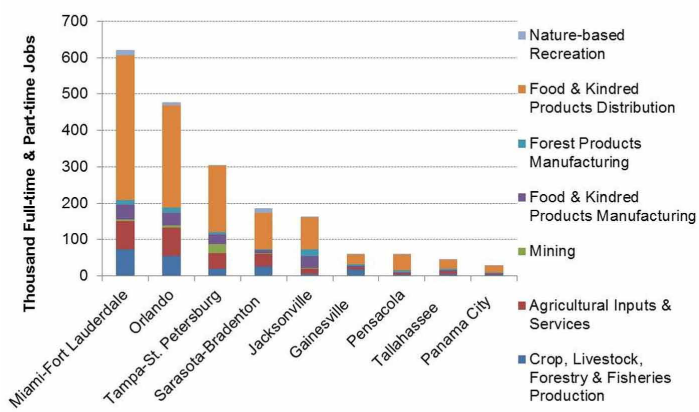

Figure 7. Employment contributions in Florida regions by agriculture, natural resources, and related industries, 2009. Source: IMPLAN data for Florida (Estimates include regional multiplier effects)

Among individual Florida counties, the eight largest counties in terms of value added impacts and employment impacts in 2009 were Miami-Dade ($13.40 billion; 222,060 jobs), followed by Hillsborough ($11.17 billion; 176,577 jobs), Orange ($8.95 billion; 165,063 jobs), Duval ($8.60 billion; 116,138 jobs), Broward ($8.47 billion; 153,557 jobs), Palm Beach ($7.83 billion; 147,681 jobs), Polk ($6.18 billion; 95,040 jobs), and Pinellas ($4.89 billion; 95,281 jobs). Eight other counties with value added impacts exceeding $1 billion were Lee ($2.83 billion), Collier ($2.21 billion), Manatee ($2.15 billion), Seminole ($2.03 billion), Volusia ($1.74 billion), Sarasota ($1.56 billion), Brevard ($1.37 billion), and Marion ($1.22 billion).

Additional detailed information on economic contributions in individual Florida counties is available at http://www.fred.ifas.ufl.edu/economic-impact-analysis/Florida-county-profiles-2009.pdf.

Share of Gross State Product and Employment

The relative importance of agriculture, natural resources, and related manufacturing, distribution, and service industries in Florida can be gauged by their share of overall economic activity in the state. The Gross State Product (GSP) of Florida in 2009 was $712 billion (equivalent to the sum of value added for all industries), and total employment in the state was 9,725,755 million jobs. The direct value added contributed by agriculture, natural resources, and related industries ($60.64 billion) represented 8.5 percent of Florida's Gross State Product (Figure 8), while the total value added impact including regional multiplier effects ($107.21 billion) represented 15.1 percent of Gross State Product. Direct employment in the agricultural, natural resources, and related industries (1.30 million full-time and part-time jobs) represented 13.4 percent of all jobs in the state (Figure 9), while total employment impacts (1.94 million jobs), comprised 20.0 percent of all jobs. Excluding *Food and Kindred Products Distribution*, agriculture, natural resources, and related industries represented 2.9 percent of Gross State Product and 4.0 percent of total state employment.

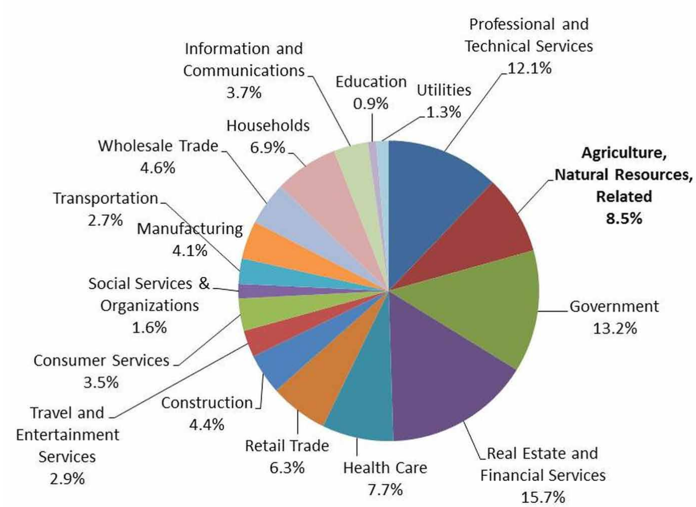

Figure 8. Direct value added by major industry groups as a share of Gross State Product of Florida in 2009. Source: IMPLAN data for Florida

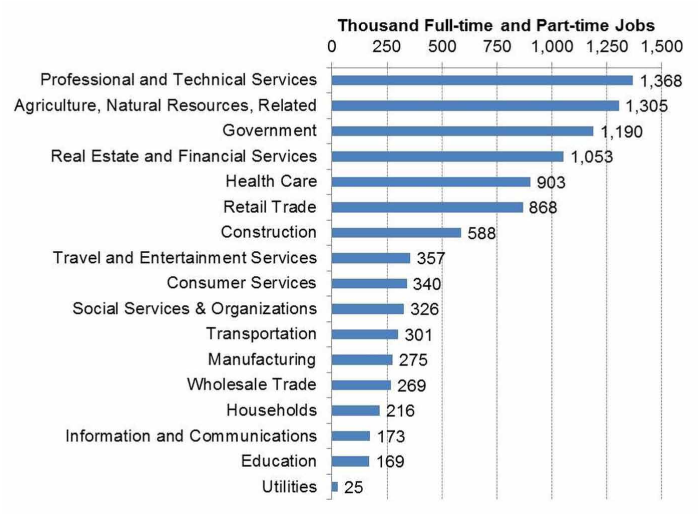

Figure 9. Direct employment by major industry groups in Florida in 2009. Source: IMPLAN data for Florida

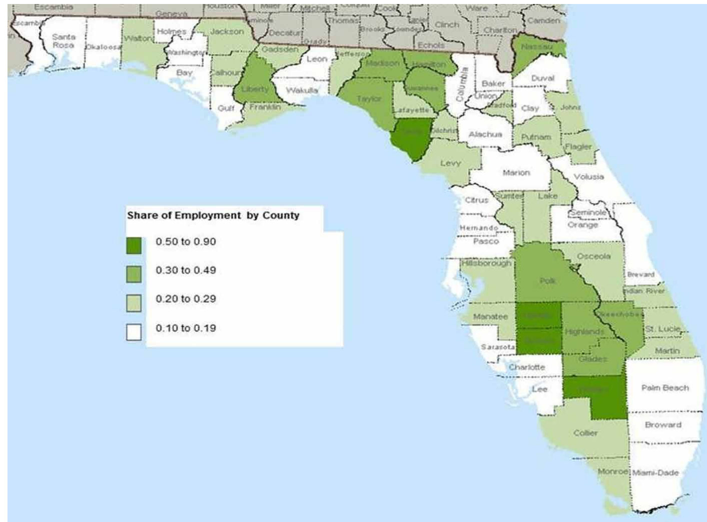

Figure 11. Map of contribution to total employment in Florida counties by agriculture, natural resources, and related industries, 2009

At the county level, total value added impacts represented over 50 percent of Gross Regional Product in three Florida counties (Hamilton, Hardee, and Glades), 30–49 percent in ten counties, and 15–29 percent in twenty-one counties (Figure 10). Total employment impacts represented over 50 percent of total employment in four Florida counties (Dixie, Hardee, DeSoto, and Glades), 30–49 percent in ten counties, and 20–29 percent in twenty-three counties (Figure 11).

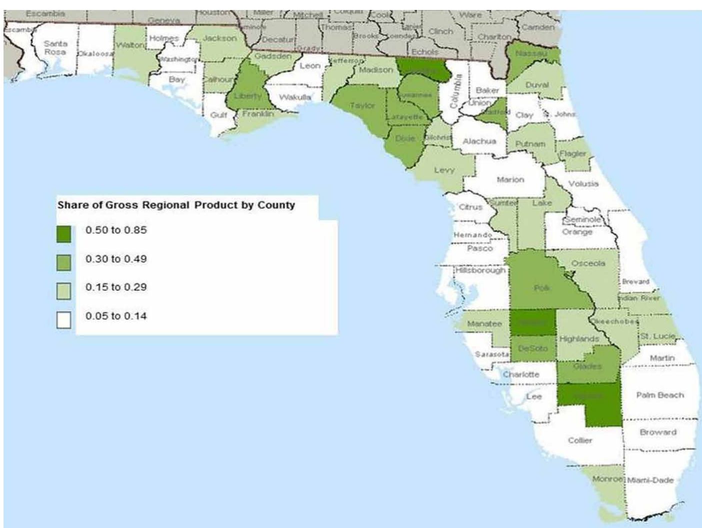

Figure 10. Map of contribution to Gross Regional Product in Florida counties by agriculture, natural resources, and related industries, 2009

Trends in Economic Contributions

In addition to the economic contributions in 2009, it is important to understand how these values have changed over time. Trends in the economic impacts of agriculture, natural resources, and related industries between 2001 and 2009 are shown in Figures 12–14, with all monetary values adjusted for inflation and expressed in constant 2009 U.S. dollars. Note that these trends may also reflect changes in commodity prices and changes in the structure of the Florida economy as well as trends in economic activity due to the effects of recession and recovery.

Direct employment in Florida's agriculture, natural resources, and related industries grew from 1.252 million jobs in 2001 to a peak of 1.382 million jobs in 2008, and then declined to 1.305 million jobs in 2009 as a result of the lingering effects of the global recession (Figure 12). This represented average annual job growth of 0.5 percent over the entire nine-year period. However, total employment impacts increased to the highest level ever in 2009, reflecting a dramatic increase in exports of Florida products to domestic and world markets, and representing a 1.8 percent average annual growth during 2001–2009. Total value added impacts grew from \$77.07 billion in 2001 to \$107.21 billion in 2009, or at a 4.9 percent average annual rate in inflation-adjusted terms (Figure 13). Among industry groups, average annual growth in value added impacts during 2001–2009 was highest for *Agricultural Inputs and Services* (14.9%), followed by *Mining* (11.5%) and *Food and Kindred Products Distribution* (6.7%), while groups with low or negative growth during this period were *Crop, Livestock, Fisheries, and Forestry Production* (–1.4%); *Nature-based Recreation* (–2.0%); and *Food and Kindred Product Manufacturing* (1.6%).

Of particular interest are the changes occurring for the recent period from 2007 to 2009, partly reflecting the effect of the global recession, which technically started in the United States in December 2007 and ended in September 2009.

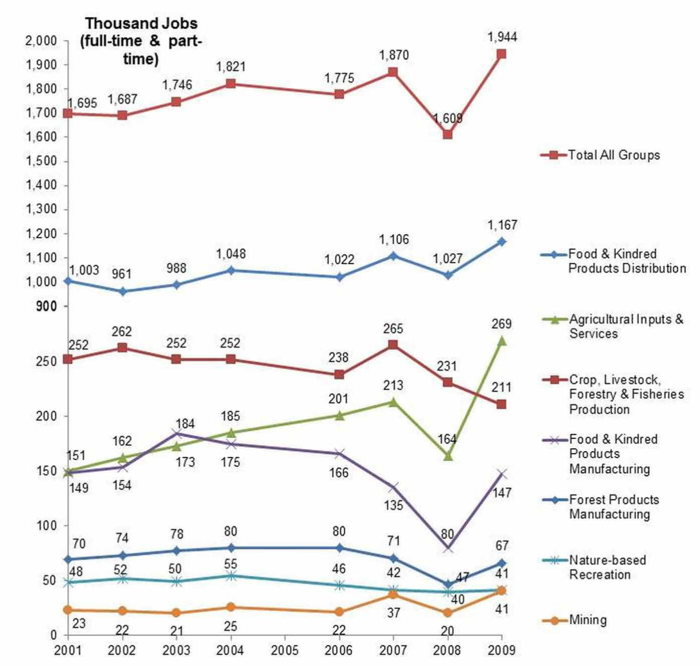

Figure 12. Trends in employment contributions by agriculture, natural resources, and related industries in Florida, 2001–2009. Source: IMPLAN data for Florida (Data unavailable for 2005. Estimates include regional multiplier effects)

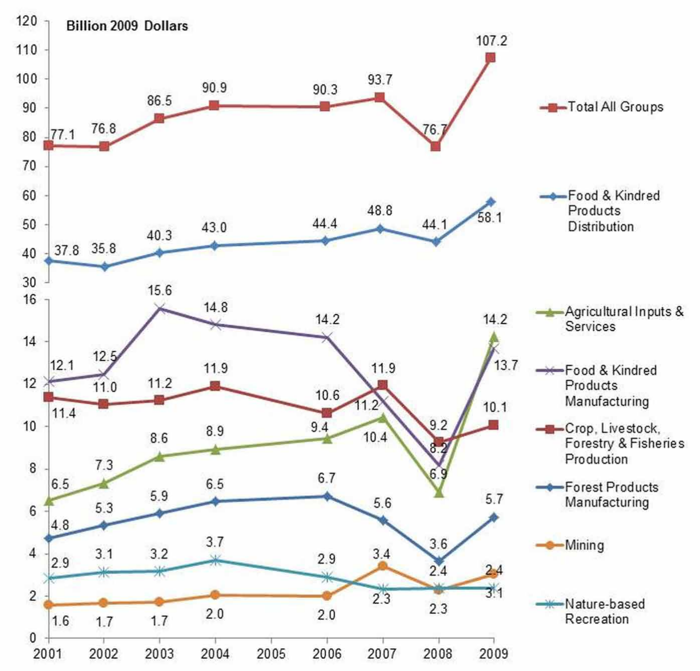

Figure 13. Trends in value added contributions by agriculture, natural resources, and related industries in Florida, 2001–2009. Source: IMPLAN data for Florida (Data unavailable for 2005. Estimates include regional multiplier effects)

Average annual growth rates were estimated separately for the periods 2001–2007 and 2007–2009 to show the effects of the recession. Total output impacts for all agriculture, natural resource, and related sectors grew at an average rate of 5.2 percent annually from 2001 to 2007, but dropped to 3.6 percent from 2007 to 2009. Interestingly, however, total employment and value impacts actually accelerated during the recession period (2007–2009)—employment impacts increased by 1.2 percent annually from 2001 to 2007, and by 2.0 percent annually during 2007–2009, while total value-added impacts grew at an average annual rate of 3.6 percent during 2001–2007, and then increased to 7.2 percent during 2007–2009. These increased growth rates for both employment and value added impacts, particularly in 2008–2009, were due to dramatically expanded exports as the rest of the U.S. and international economies began to recover from recession.

Among groups within the agriculture, natural resources, and related industries, average annual growth in value added impacts from 2001 to 2007 was highest for *Mining* (19.0%) and *Agricultural Inputs and Services* (10.1%), followed by *Food and Kindred Products Distribution* (4.8%) and *Forest Product Manufacturing* (2.9%). However, from 2007 to 2009, *Agricultural Inputs and Services* had the highest average annual growth in value added impacts (18.1%), followed by *Food and Kindred Products Manufacturing* (11.0%) and *Food and Kindred Products Distribution* (9.5%), while *Crop, Livestock, Forestry, and Fisheries Production* and *Mining* suffered the largest setbacks, with value added impacts declining by 7.8 percent and 5.2 percent, respectively. From 2007 to 2009, employment impacts increased the most for *Agricultural Inputs and Services* (13.2%), *Mining* (5.2%), and *Food and Kindred Products Manufacturing* (4.5%), while *Crop, Livestock, Forestry, and Fisheries Production* had a large decline (–10.2%), as did *Forest Products Manufacturing* (–2.9%).

Trends in employment impacts of food and fiber commodity groups in Florida are shown in Figure 14. *Environmental Horticulture*, *Fruit and Vegetable Farming and Processing*, and *Forestry, Wood and Paper Products Manufacturing* experienced growth in employment impacts, value added impacts and output impacts in 2009, compared with 2008. From 2007 to 2009, *Grain and Oilseed Farming, and Processing* had the highest annual average growth in employment impacts (27.9%), value added impacts (28.7%), and output impacts (33.4%). *Sugarcane Farming, Refined Sugar, and Confections* showed declines in employment impacts (–26.8%), value added impacts (–33.1%), and output impacts (–25.0%).

Among individual industry sectors, the effect of the recession from 2007 to 2009 varied widely. While most sectors experienced a decline during this period, some sectors grew noticeably. Sectors with the highest growth in value

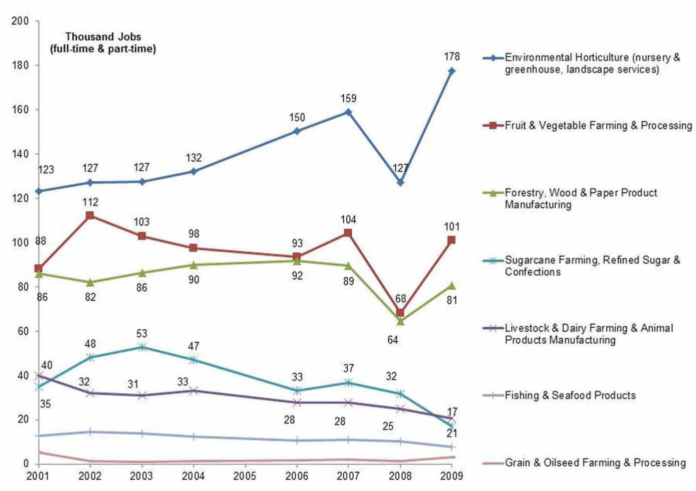

Figure 14. Trends in employment contributions by food and fiber commodity groups in Florida in 2001–2009. Source: IMPLAN data for Florida (Data unavailable for 2005. Estimates include regional multiplier effects)

added impacts were *Tree nut farming* (235%), *Fluid milk and butter manufacturing* (163%), *Fats and oils refining and blending* (144%), *Support activities for other mining* (98%), and *Lawn and garden equipment manufacturing* (96%); however, these sectors were rather small. Sectors with the highest decline in value added impacts were *Dog and cat food manufacturing* (–46%), *Sugar manufacturing* (–42%), *Support activities for oil and gas operations* (–40%), *Cheese manufacturing* (–46%), *Commercial hunting and trapping* (–38%), and *Animal production except cattle and poultry* (–32%).

The average annual growth rate in direct value added for agriculture, natural resources, and related industries for 2001–2007 was 3.3 percent, but then fell to 1.6 percent for 2007–2009. In comparison, growth in direct value added during 2007–2009 for other major industry groups was higher for *Education* (9.9%), *Financial Services* (7.8%), *Health Care and Social Services* (4.8%), and *Real Estate and Renting* (2.1%), while negative growth was observed for *Construction* (–16.3%), *Management and Administrative Services* (–8.7%), *Utilities* (–4.2%), *Retail Trade* (–3.0%), *Wholesale Trade* (–2.6), *Travel and Entertainment Services* (–2.2%), and *Professional and Technical Services* (–1.5%).

Conclusions

This analysis indicated that agriculture and natural resources are linked to a broad array of economic sectors for commodity production, food and kindred product manufacturing, distribution, and related service activities. These industries collectively had a significant economic impact on the Florida economy in 2009, with direct employment accounting for about 13.4 percent of total employment and direct value added representing 8.5 percent of Gross State Product. *Food and Kindred Products Distribution* was by far the largest segment of the industry, representing 54 percent of value added and 60 percent of employment impacts. These industries are present throughout the state, with major activity in urbanized metropolitan areas as well as rural counties where it may be relatively more important as a share of total economic activity, although less so in absolute magnitude. The agriculture, natural resources, and related industries have grown substantially since 2001, with an interruption in 2008 by the global recession, and then recovering strongly in 2009, with total regional economic impacts increasing dramatically due to increased exports. Growth in economic activity of agriculture, natural resources, and related industries during 2007–2009 was higher than most other major industry groups in terms of value added, thus entailing their integral contributions towards the sustainability of the Florida economy.

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Appendix: Glossary of Economic Impact Terms

Apparent consumption represents the consumption of any particular commodity in a region, and is calculated as the local output, plus imports and minus exports.

Employee compensation is comprised of wages, salaries, commissions, and benefits such as health and life insurance, retirement, and other forms of cash or non-cash compensation.

Employment is a measure of the number of jobs involved, including full-time, part-time, and seasonal positions. It is not a measure of full-time equivalents (FTE).

Exports are sales of goods to customers outside the region in which they are produced, which represents a net inflow of money to the region. This also applies to sales of services to customers visiting from other regions.

Final Demand represents sales to final consumers, including households and governments, and exports from the region.

Gross Regional Product is a measure of total economic activity in a region, or total income generated by all goods and services. It represents the sum of total value added contributions by all industries in that region, and is equivalent to Gross Domestic Product for the nation.

IMPLAN is a computer-based input-output modeling system that enables users to create regional economic models and multipliers for any region consisting of one or more counties or states in the United States. The current version of the *IMPLAN* software, Version 3.0, accounts for commodity production and consumption for 440 industry sectors; 10 household income levels; taxes to local, state, and federal governments; capital investment; imports and exports; transfer payments; and business inventories. Regional datasets for individual counties or states are purchased separately.

Impact or **total impact** is the change in total regional economic activity (e.g., output or employment) resulting from a change in final demand, direct industry output, or direct employment, where estimates are based on regional economic multipliers.

Imports are purchases of goods and services originating outside the region of analysis.

Income is the money earned within the region from production and sales.

Total income includes labor income such as wages, salaries, employee benefits, and business proprietor income, plus other property income.

Other property income represents income received from investments, such as corporate dividends, royalties, property rentals, or interest on loans.

Indirect business taxes are taxes paid to governments by individuals or businesses for property, excise, and sales taxes, but do not include income taxes.

Input-Output (I-O) model and Social Accounting Matrix (SAM) together are a representation of the transactions between industry sectors within a region that captures what each sector purchases from every other sector in order to produce its output of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced backwards through the supply chain.

Intermediate sales are sales to other industrial sectors. The value of intermediate sales is netted-out of Total Value Added.

Local refers to goods and services that are sourced from within the region, which may be defined as a county, multi-county cluster, or state.

Non-local refers to economic activity originating outside the region.

Margins represent the portion of the purchaser price accruing to the retailer, wholesaler, and producer/manufacturer, in the supply chain. Typically, only the retail margins of many goods purchased by consumers accrue to the local region, as the wholesaler, shipper, and manufacturer often lie outside the local area.

Multipliers capture the total effects, both direct and secondary, in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers are derived from an I-O model of the regional economy. Multipliers may be expressed as ratios of sales, income, or employment, or as ratios of total income or employment changes relative to direct sales. Multipliers express the degree of interdependency between sectors in a region's economy and therefore vary considerably across regions and sectors. A **sector-specific multiplier** gives the total changes to the economy associated with a unit change in output or employment in a given sector (i.e., the **direct economic effect)** being evaluated. **Indirect effects multipliers** represent the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to businesses (e.g., increased sales in input supply firms resulting from more nursery industry sales). **Induced effects multipliers** represent the increased sales within the region from household spending of the income earned in the direct and supporting industries for housing, utilities, food, etc. An **imputed multiplier** is calculated as the ratio of the total impact divided by direct effect for any given measure (e.g., output, employment).

Output is the dollar value of a good or service produced or sold, and is equivalent to sales revenues plus changes in business inventories.

Output-consumption ratio is the total industry output divided by the apparent consumption for any given commodity or industry, and is a measure of the degree to which local demands are met by local production.

Producer prices are the prices paid for goods at the factory or point of production. For manufactured goods, the purchaser price equals the producer price plus a retail margin, a wholesale margin, and a transportation margin. For services, the producer and purchaser prices are equivalent.

Proprietor income is income received by non-incorporated private business owners or self-employed individuals.

Purchaser prices are the prices paid by the final consumer of a good or service.

Region defines the geographic area for which impacts are estimated, usually an aggregation of several counties defined on the basis of worker commuting patterns.

Sector is an individual industry or group of industries that produce similar products or services, or have similar production processes. Sectors are classified according to the North American Industrial Classification System (NAICS).

Value Added is a broad measure of income, representing the sum of employee compensation, proprietor income, other property income, indirect business taxes, and capital consumption (depreciation). Value added is a commonly used measure of the contribution of an industry to the regional economy because it avoids double counting of intermediate sales.

Table 1. Economic contributions of agriculture, natural resources, and related industry groups and sectors in Florida, 2009

Industry Group / Sector	Employment		Output (Revenue)		Exports	Value Added		Labor Income Impacts	Other Property Income Impacts	Indirect Business Tax Impacts
	Direct	Total Impacts	Direct	Total Impacts		Direct	Total Impacts			
	Full-time and Part-time Jobs		Million Dollars							
Crop, Livestock, Forestry & Fisheries Production	**131,714**	**211,007**	**9,807**	**18,286**	**6,027**	**4,802**	**10,077**	**6,856**	**2,633**	**587**
Support activities for agriculture and forestry	51,356	59,392	1,431	2,507	897	1,077	1,752	1,625	64	63
Greenhouse, nursery, and floriculture production	17,618	32,516	1,793	3,378	1,168	1,039	2,033	1,402	533	97
Fruit farming	14,901	36,485	1,949	4,106	1,336	972	2,329	1,490	685	154
Sugarcane and sugar beet farming	12,925	15,321	403	659	179	162	321	160	131	30
Vegetable and melon farming	11,990	29,220	1,777	3,487	1,068	855	1,929	1,183	642	104
Commercial fishing	4,466	5,976	121	294	114	81	189	125	53	10
Commercial logging	3,894	5,470	421	601	120	128	241	187	40	14
Cattle ranching and farming	3,596	5,188	374	559	188	57	169	93	58	18
Animal production, except cattle and poultry and eggs	3,168	3,265	106	114	5	46	51	19	28	3
Dairy cattle and milk production	2,959	3,487	350	415	87	76	114	42	65	7
Forestry, forest products, and timber tract production	2,227	8,660	563	1,271	563	177	592	328	207	57
All other crop farming	1,145	2,225	186	311	112	57	127	66	46	14
Poultry and egg production	645	2,144	270	433	132	50	151	91	51	10
Grain farming	316	437	14	27	8	5	13	6	6	1
Cotton farming	202	692	33	84	33	14	45	25	17	3
Tree nut farming	133	257	9	23	8	5	13	9	3	1
Tobacco farming	128	187	5	12	4	1	5	3	1	0
Oilseed farming	47	86	3	8	3	2	4	2	2	0
Agricultural Inputs & Services	**153,123**	**269,398**	**17,214**	**31,920**	**9,773**	**5,477**	**14,233**	**9,536**	**3,737**	**960**
Landscape services	93,018	130,292	5,385	9,600	2,387	2,869	5,513	3,756	1,428	328
Pest control services	28,475	39,885	1,648	2,939	731	878	1,688	1,150	437	100
Veterinary services	26,168	31,054	1,448	2,004	320	837	1,188	1,003	108	77
Fertilizer manufacturing	5,006	65,933	8,418	16,833	6,161	825	5,638	3,515	1,683	440
Farm machinery and equipment manufacturing	276	547	126	161	35	29	50	26	22	2

Industry Group / Sector	Employment		Output (Revenue)		Exports	Value Added		Labor Income Impacts	Other Property Income Impacts	Indirect Business Tax Impacts
	Direct	Total Impacts	Direct	Total Impacts		Direct	Total Impacts			
	Full-time and Part-time Jobs		Million Dollars							
Pesticide and other agricultural chemical manufacturing	93	1,599	158	352	139	32	150	84	55	11
Lawn and garden equipment manufacturing	87	88	31	31	0	6	6	3	3	0
Food & Kindred Products Manufacturing	**40,795**	**147,424**	**22,395**	**35,542**	**10,867**	**5,726**	**13,663**	**7,332**	**4,501**	**1,830**
Bread and bakery product manufacturing	6,759	6,947	1,042	1,066	20	307	322	265	47	9
Soft drink and ice manufacturing	6,672	51,946	4,494	9,851	3,768	552	3,943	2,660	1,031	251
Fruit and vegetable canning, pickling, and drying	3,493	22,330	1,841	4,257	1,648	438	1,722	1,020	592	110
Frozen food manufacturing	3,213	12,664	1,047	2,261	955	251	968	637	268	64
All other food manufacturing	2,253	3,134	697	820	124	131	202	128	66	7
Tobacco product manufacturing	2,187	8,514	3,713	4,462	990	2,259	2,730	480	1,438	812
Animal (except poultry) slaughtering, rendering, and processing	1,964	2,573	878	961	77	89	135	107	23	5
Fluid milk and butter manufacturing	1,870	1,930	1,326	1,333	6	172	176	107	65	4
Sugarcane mills and refining	1,771	1,771	1,363	1,363	1,023	185	185	148	26	10
Seafood product preparation and packaging	1,482	1,688	457	481	17	73	88	77	9	3
Seasoning and dressing manufacturing	1,354	1,709	666	710	31	91	117	88	25	4
Poultry processing	1,231	1,461	268	296	23	44	61	50	9	2
Cookie, cracker, and pasta manufacturing	1,024	1,125	412	424	11	83	90	50	38	2
Breweries	844	10,174	997	2,178	789	411	1,127	558	292	276
Coffee and tea manufacturing	763	1,681	541	661	112	96	165	97	61	8
Snack food manufacturing	723	872	483	501	12	103	114	43	69	2
Ice cream and frozen dessert manufacturing	665	687	274	277	2	43	44	28	15	1
Other animal food manufacturing	636	7,590	707	1,619	644	67	625	377	192	56
Confectionery manufacturing from purchased chocolate	437	964	126	196	60	19	60	35	21	4
Distilleries	355	3,092	257	584	200	185	397	157	67	173
Non-chocolate confectionery manufacturing	323	761	106	161	42	17	50	32	15	3
Flour milling and malt manufacturing	216	2,252	264	526	223	33	191	115	61	15

Industry Group / Sector	Employment		Output (Revenue)		Exports	Value Added		Labor Income Impacts	Other Property Income Impacts	Indirect Business Tax Impacts
	Direct	Total Impacts	Direct	Total Impacts		Direct	Total Impacts			
	Full-time and Part-time Jobs		Million Dollars							
Wineries	178	681	59	113	27	12	48	33	10	6
Flavoring syrup and concentrate manufacturing	115	141	181	184	3	45	47	6	40	0
Chocolate and confectionery manufacturing from cacao beans	104	325	59	88	25	4	21	14	6	2
Tortilla manufacturing	84	84	16	16	0	4	4	3	1	0
Cheese manufacturing	27	30	25	26	0	1	2	1	0	0
Dry, condensed, and evaporated dairy product manufacturing	18	39	19	22	2	2	3	2	1	0
Dog and cat food manufacturing	16	20	18	18	1	3	4	1	2	0
Soybean and other oilseed processing	8	111	37	50	19	1	9	5	3	1
Fats and oils refining and blending	6	55	17	23	5	4	7	3	4	0
Breakfast cereal manufacturing	4	59	3	9	3	1	4	2	2	0
Wet corn milling	2	14	3	5	2	0	1	1	0	0
Forest Products Manufacturing	**18,790**	**66,601**	**6,776**	**12,731**	**4,606**	**2,135**	**5,725**	**3,448**	**1,897**	**380**
Paperboard container manufacturing	2,927	11,965	1,039	2,191	1,031	259	949	643	234	72
Wood windows and doors and millwork manufacturing	2,670	2,808	434	451	11	157	168	127	37	4
Sawmills and wood preservation	2,088	2,689	459	530	43	110	152	113	33	6
Engineered wood member and truss manufacturing	1,952	3,055	301	431	92	138	217	138	71	8
Sanitary paper product manufacturing	1,637	9,838	1,331	2,338	783	471	1,094	530	503	61
Paper mills	1,175	12,813	904	2,362	904	280	1,139	666	387	86
Wood container and pallet manufacturing	1,159	1,220	156	163	5	78	83	48	33	2
Veneer and plywood manufacturing	949	1,166	169	196	16	65	81	62	12	8
Paperboard mills	910	6,906	723	1,461	680	207	664	383	229	53
Stationery product manufacturing	880	3,183	273	560	263	74	249	166	67	16
Pulp mills	607	6,085	467	1,157	467	124	533	325	164	44
All other miscellaneous wood product manufacturing	568	730	91	111	13	44	56	33	22	1
Coated and laminated paper, packaging paper and plastics film manufacturing	450	1,983	188	380	181	53	170	105	54	11

Industry Group / Sector	Employment		Output (Revenue)		Exports	Value Added		Labor Income Impacts	Other Property Income Impacts	Indirect Business Tax Impacts
	Direct	Total Impacts	Direct	Total Impacts		Direct	Total Impacts			
	Full-time and Part-time Jobs		Million Dollars							
All other converted paper product manufacturing	376	1,553	103	244	101	27	114	74	32	8
All other paper bag and coated and treated paper manufacturing	322	462	113	131	14	30	40	29	9	2
Reconstituted wood product manufacturing	122	145	24	26	2	15	17	5	11	0
Mining	**15,446**	**41,054**	**3,982**	**7,076**	**2,136**	**1,135**	**3,055**	**1,674**	**1,155**	**225**
Extraction of oil and natural gas	10,308	22,919	2,305	3,804	986	342	1,285	744	431	109
Mining and quarrying other non-metallic minerals	1,965	6,687	746	1,351	467	396	759	378	333	49
Mining and quarrying stone	1,091	3,942	235	577	234	133	346	189	135	21
Mining and quarrying sand, gravel, clay, and ceramic and refractory minerals	1,075	3,166	174	424	174	91	247	160	71	16
Drilling oil and gas wells	414	2,819	242	533	207	49	228	124	89	15
Support activities for oil and gas operations	277	297	45	47	2	12	13	12	1	0
Mining gold, silver, and other metal ore	172	316	177	194	11	100	111	26	75	10
Support activities for other mining	124	887	52	139	52	8	63	39	19	4
Mining coal	21	21	7	7	3	3	3	2	1	1
Nature-based Recreation	**25,398**	**41,451**	**1,861**	**3,703**	**999**	**1,239**	**2,401**	**1,525**	**646**	**231**
Golf courses	20,252	33,216	1,453	2,940	805	979	1,918	1,237	499	182
Recreational fishing	4,219	6,920	303	612	168	204	400	258	104	38
Commercial hunting and trapping	927	1,315	105	151	26	56	84	30	43	11
Subtotal	**385,265**	**776,936**	**62,035**	**109,258**	**34,408**	**20,514**	**49,154**	**30,372**	**14,569**	**4,213**
Food & Kindred Products Distribution	**919,239**	**1,166,842**	**64,639**	**92,581**	**15,368**	**40,127**	**58,059**	**37,777**	**12,667**	**7,615**
Food services and drinking places	647,846	797,657	40,412	57,376	9,720	22,034	32,877	22,443	7,225	3,209
Retail Stores–Food and beverage	190,440	213,875	10,666	13,291	1,378	9,008	10,706	6,644	2,046	2,016
Wholesale trade, food & kindred products	67,339	140,584	12,593	20,821	4,204	8,263	13,575	8,117	3,248	2,209
Retail lawn and garden centers	13,615	14,726	968	1,092	65	821	902	573	148	181
Grand Total	**1,304,504**	**1,943,778**	**126,674**	**201,839**	**49,776**	**60,641**	**107,213**	**68,149**	**27,236**	**11,828**

Source: *IMPLAN* data for Florida (MIG, Inc.).

Total impact estimates include regional multiplier effects.

Table 2. Employment contributions in Florida regions and counties by agriculture, natural resources, and related industries, 2009

Region / County	Crop, Livestock, Forestry & Fisheries Production	Agricultural Inputs & Services	Food & Kindred Products Manufac-turing	Forest Products Manufac-turing	Mining	Nature-based Recreation	Food & Kindred Products Distribution	Total
	(Full-time and Part-time Jobs)							
Gainesville	**17,545**	**4,228**	**3,725**	**2,690**	**1,009**	**419**	**25,701**	**55,316**
Alachua	2,197	2,922	277	744	147	53	17,943	24,284
Bradford	479	117	90	253	719	21	1,055	2,734
Columbia	1,192	204	470	544	4	47	2,908	5,369
De Soto	5,460	152	616	0	2	46	566	6,842
Dixie	975	14	5	788	7	5	367	2,160
Gilchrist	758	200	2	83	3	23	263	1,332
Lafayette	712	189	3	26	56	20	158	1,163
Levy	1,882	163	32	51	24	6	1,166	3,325
Suwannee	3,669	181	2,223	10	43	190	1,096	7,411
Union	221	86	8	191	4	8	179	696
Jacksonville	**5,085**	**12,347**	**35,632**	**13,593**	**1,270**	**1,825**	**84,361**	**154,113**
Baker	248	80	0	0	0	0	696	1,024
Clay	542	1,252	474	11	628	108	7,553	10,569
Duval	982	8,564	34,897	6,772	551	754	59,146	111,667
Nassau	1,170	556	88	3,885	2	101	2,976	8,779
Putnam	1,011	407	36	2,648	36	48	1,996	6,181
St. Johns	1,132	1,488	137	276	53	813	11,994	15,893
Miami–Fort Lauderdale	**71,938**	**64,081**	**45,211**	**8,450**	**3,196**	**13,627**	**377,898**	**584,402**
Broward	2,060	18,230	8,210	1,035	591	2,747	110,624	143,498
Glades	1,107	17	23	0	11	22	110	1,291
Hendry	13,216	280	2,984	0	61	15	1,418	17,974
Indian River	7,479	2,450	221	39	103	824	6,173	17,289
Martin	3,351	2,834	1,437	66	78	1,544	7,870	17,180
Miami-Dade	13,587	16,939	14,898	6,021	1,483	1,408	154,497	208,833
Monroe	1,386	884	80	11	169	386	11,103	14,020
Okeechobee	3,116	358	616	0	62	30	1,477	5,658
Palm Beach	20,465	19,695	15,464	1,114	537	6,158	75,538	138,971
St. Lucie	6,169	2,394	1,279	164	102	493	9,088	19,689
Orlando	**54,007**	**63,810**	**37,569**	**9,920**	**6,204**	**7,348**	**268,272**	**447,129**
Brevard	789	3,266	388	159	88	995	24,911	30,596
Citrus	511	703	4	218	118	324	4,489	6,367
Flagler	1,121	871	34	74	84	164	2,880	5,229
Hardee	5,730	192	132	151	421	31	566	7,222
Highlands	9,410	439	110	246	211	250	3,294	13,961
Lake	3,858	3,718	2,144	206	438	303	12,195	22,861
Marion	6,226	3,610	1,501	558	309	740	12,297	25,241
Orange	4,553	15,396	9,254	1,445	309	1,600	113,956	146,513
Osceola	1,431	2,106	341	271	155	498	16,610	21,413
Polk	15,787	21,144	21,329	4,974	3,679	889	21,028	88,831

Region / County	Crop, Livestock, Forestry & Fisheries Production	Agricultural Inputs & Services	Food & Kindred Products Manufacturing	Forest Products Manufacturing	Mining	Nature-based Recreation	Food & Kindred Products Distribution	Total
	(Full-time and Part-time Jobs)							
Seminole	634	7,908	634	1,215	107	311	25,463	36,273
Sumter	740	398	572	276	207	536	3,281	6,010
Volusia	3,218	4,060	1,126	126	77	705	27,301	36,613
Panama City	**3,707**	**1,608**	**438**	**2,283**	**263**	**482**	**17,219**	**26,002**
Bay	902	1,358	248	1,200	102	339	13,853	18,003
Calhoun	501	32	0	95	68	26	391	1,114
Gulf	173	23	6	83	3	12	499	800
Holmes	612	57	44	33	3	6	401	1,156
Jackson	1,153	60	75	825	76	72	1,530	3,791
Washington	366	79	65	47	11	27	545	1,139
Pensacola	**2,970**	**4,978**	**563**	**4,260**	**631**	**741**	**40,624**	**54,766**
Escambia	1,205	1,463	288	4,132	260	347	16,478	24,174
Okaloosa	519	1,526	142	12	156	290	14,256	16,901
Santa Rosa	630	1,101	106	17	213	59	4,774	6,900
Walton	615	888	26	99	2	45	5,115	6,792
Sarasota–Bradenton	**25,629**	**28,898**	**7,681**	**1,493**	**1,828**	**9,581**	**96,660**	**171,769**
Charlotte	1,122	1,722	87	47	108	415	6,695	10,197
Collier	9,636	6,829	221	38	490	3,774	18,768	39,756
Lee	3,233	8,345	652	207	418	2,969	36,157	51,981
Manatee	10,836	4,668	6,512	1,064	256	1,041	15,268	39,645
Sarasota	802	7,334	209	136	556	1,382	19,772	30,190
Tallahassee	**5,861**	**5,738**	**1,303**	**3,445**	**1,032**	**419**	**23,310**	**41,109**
Franklin	59	23	152	0	3	33	771	1,041
Gadsden	2,179	472	70	760	835	58	898	5,271
Hamilton	315	1,677	0	0	0	14	270	2,277
Jefferson	739	116	20	0	90	28	285	1,278
Leon	654	3,148	170	69	13	137	19,080	23,272
Liberty	335	4	32	749	10	91	148	1,369
Madison	851	11	519	7	7	23	581	1,999
Taylor	578	69	293	1,859	72	8	621	3,501
Wakulla	152	218	47	0	1	26	655	1,100
Tampa–St. Petersburg	**20,105**	**35,028**	**28,124**	**5,060**	**23,572**	**2,522**	**172,978**	**287,389**
Hernando	718	904	155	96	50	228	6,659	8,810
Hillsborough	16,165	21,769	23,052	3,546	1,177	1,185	99,739	166,633
Pasco	2,330	3,932	949	159	174	467	14,639	22,652
Pinellas	892	8,424	3,967	1,259	22,170	641	51,941	89,294
Total All Counties	**206,848**	**220,717**	**160,246**	**51,193**	**39,004**	**36,963**	**1,107,024**	**1,821,995**

Source: *IMPLAN* data for Florida (MIG, Inc.)

Impact estimates include regional multiplier effects.