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Economic Contributions of Agriculture, Natural Resources, and Related Food Industries in Florida in 2011[1]

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Executive Summary

Agriculture, natural resources, and related food industries remain a significant force in the economy of Florida, and it is important to recognize their economic contributions for informed public policy. We evaluated the economic contributions of these industries for calendar year 2011 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 (MIG, Inc.) and associated state and county databases to estimate economic multipliers that capture the additional economic activity generated by the re-spending of income in the local economy arising from extra new final demand. The industry sectors included in this analysis represent a broad array of activities for agricultural and natural resource commodity production, distribution, and supporting services. The extent of the total effects of a particular activity or event in a region (state, county) is measured by several yardsticks, including employment, output, value added, export, labor income, other property income, and indirect business taxes. Value-added is a preferred measure of economic activity because it is comparable to Gross Domestic Product (GDP). The glossary of economic impact terms that follows this summary will orient the reader to technical terms used in this report.

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Economic contribution results for Florida's agriculture, natural resources, and related food industries for 2011 included:

- Industry output or sales revenues of $130.37 billion, and total output contribution of $198.90 billion, including indirect/induced multiplier effects arising from foreign and domestic exports of $47.45 billion
- Total employment impacts (including multiplier effects) of 1.96 million full-time and part-time jobs, representing 20.2 percent of all jobs in the state
- Direct value-added of $62.63 billion, representing 8.5 percent of Florida's GDP, and total value-added impacts (including multiplier effects) of $104.30 billion, representing 14.2 percent of state GDP.
- Total labor income impacts of $67.52 billion for employee wages and benefits and business proprietor income, and total property income impacts of $24.96 billion for rents, interest, royalties and dividends
- Total indirect business-tax impacts of $11.82 billion paid to local, state, and federal governments

Across the various groups of agriculture, natural resource, and related food industry sectors, total employment and value added impacts were largest for the *Food and Kindred Products Distribution* industry group (1.18 million jobs; $56.36 billion), which includes food service establishments (restaurants and bars) and retail food stores, followed by *Agricultural Inputs and Services* (292,142 jobs; $13.29 billion); *Crop, Livestock, Forestry, and Fisheries Production* (220,839 jobs; $11.64 billion); *Food and Kindred Product Manufacturing* (137,339 jobs; $13.4 billion); *Forest Product Manufacturing* (62,929 jobs; $5.31 billion); *Mining* (56,966 jobs; $3.69 billion); and *Nature-Based Recreation* (11,296 jobs; $626 million). Excluding the *Food and Kindred Products Distribution* industry group, total value-added impacts represented 6.52 percent of state GDP and employment was 8.02 percent of total state employment.

Information on economic contributions was also regrouped and evaluated for several agricultural commodities that have identifiable market-chain linkages between production and processing/manufacturing sectors. The total employment and value-added contributions were highest for the *Environmental Horticulture* group (221,063 jobs; $9.72 billion), followed by *Fruit and Vegetable Farming and Processing* (94,698 jobs; $7.36 billion); *Agricultural Input and Services* (138,965 jobs; $7.04 billion); *Forestry and Forest Products* (75,704 jobs; $6.01 billion); *Sugarcane Farming and Refined Sugar Manufacturing* (29,303 jobs; $1.15 billion); *Livestock and Dairy Farming and Animal Products Manufacturing* (23,296 jobs; $1.14 billion); *Grain & Oilseed Farming & Processing* (3,073 jobs; $291 million); and *Fishing and Seafood Products* (9,518 jobs; $260 million).

Geographically, the size and composition of agriculture, natural resources, and related food 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 of Miami-Ft. Lauderdale, Orlando, Tampa-St. Petersburg, Sarasota-Bradenton, and Jacksonville, where there are large demands for food and kindred products and a large workforce available for the industry. The eight largest counties in terms of total employment and value-added impacts were Miami-Dade (222,402 jobs; $13.20 billion); Hillsborough (148,158 jobs; $9.27 billion); Orange (155,653 jobs; $8.31 billion); Palm Beach (148,994 jobs; $8.20 billion); Broward (159,638 jobs; $8.03 billion); Duval (110,550 jobs; $7.91 billion); Polk (93,237 jobs; $6.10 billion); and Pinellas (87,981 jobs; $4.32 billion). However, the economic contributions of agriculture and related industries are also relatively more important in many rural areas, where these industries represent a higher share of total economic activity, in some cases up to 80 percent. 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-2011.pdf.

Direct employment in the agriculture, natural resources, and related food industries in Florida grew from 1.281 million jobs in 2001 to a peak of 1.403 million jobs in 2008, before declining to 1.331 million jobs in 2009 during the recession. In 2011, direct employment increased again to 1.408 million jobs, which was 9.9 percent higher than in 2001, representing average annual growth of 0.8 percent; and total employment impacts increased to 1.965 million jobs, reflecting a dramatic increase in exports of Florida products to domestic and world markets. Average annual growth in value-added impacts during 2001–2011 was highest for *Mining* (8.3%), followed by *Agricultural Inputs and Services* (5.4%) and *Food and Kindred Products Distribution* (4.1%). Growth rates in agriculture and related industries were higher than in many other Florida industries during the recent period.

Table ES1. Summary of economic contributions of agriculture, natural resources, and related food industries in Florida in 2011, by major industry group and Florida region

Industry Group	Direct Employ-ment (Jobs)	Direct Output (M$)	Exports (M$)	Employ-ment Impacts (Jobs)	Value-Added Impacts (M$)	Labor Income Impacts (M$)	Other Property Income Impacts (M$)	Indirect Business Tax Impacts (M$)
Crop, Livestock, Forestry & Fisheries Production	130,546	10,537	6,595	220,839	11,639	7,856	3,314	470
Agricultural Inputs & Services	201,261	17,036	9,318	292,142	13,287	9,455	3,048	785
Food & Kindred Products Manufacturing	40,204	23,252	10,642	137,339	13,396	6,863	4,581	1,951
Forest Products Manufacturing	18,444	6,924	4,650	62,929	5,306	3,345	1,624	337
Food & Kindred Products Distribution	989,278	67,147	12,989	1,183,709	56,358	37,518	10,870	7,970
Mining	20,425	4,908	3,027	56,966	3,686	2,105	1,342	239
Nature-Based Recreation	7,762	568	226	11,296	626	375	179	72
Florida Region								
Miami-Fort Lauderdale	467,894	41,374	17,259	641,007	34,825	23,117	7,927	3,686
Orlando	347,135	31,910	15,064	489,440	25,047	16,254	6,054	3,093
Tampa-St. Petersburg	192,799	19,063	8,429	273,410	15,041	9,955	3,356	1,606
Sarasota-Bradenton	147,569	11,304	4,613	199,048	9,634	6,614	2,074	886
Jacksonville	104,450	13,291	7,478	161,615	10,756	6,029	3,091	1,631
Gainesville	40,312	3,785	2,016	53,112	2,221	1,311	676	218
Tallahassee	33,522	3,603	2,069	48,526	2,395	1,526	628	225
Panama City	23,364	2,103	1,106	34,103	1,557	952	433	165
Pensacola	49,256	3,769	1,510	64,959	2,822	1,757	721	313
Total All Industries, All Regions	1,406,301	130,203	59,543	1,965,221	104,299	67,516	24,959	11,823

Total impact estimates include regional multiplier effects. Employment represents full-time and part-time positions.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Glossary of Economic Impact Terms

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

Contribution (economic) represents the gross change in economic activity associated with an industry, event, or policy in an existing regional economy.

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 temporary/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 by all industries in that region, and is equivalent to GDP 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, accounts for commodity production and consumption for 440 industry sectors, 10 household income levels, taxes to local/state/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, estimated 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.

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) represent the transactions between industry sectors within a region and capture what each sector purchases from every other sector in order to produce its output of goods or services. The I-O model and SAM are a useful way to understand an economy by tracking changes in spending through the supply chain.

Intermediate sales are sales to other industrial sectors. The value of intermediate sales is netted out of (subtracted from) 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 because 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).

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

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 that 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 avoids double counting of intermediate sales and is therefore a commonly used measure of the contribution of an industry to the regional economy.

Introduction

Agriculture, natural resources, and related food industries represent a major set of economic activities 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 use natural resources provided by Florida'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, and 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 undeveloped lands provide an array of opportunities for nature-based recreation and eco-tourism. Thus, the chain of agricultural and related food industry activities encompasses "from farm to table" and beyond.

Economic impact analysis assesses the effect of a new or present activity, industry, or event on the overall economy of a region such as a state, county, or city. Any activity that generates payments has an effect on other parts of the local economy, and any expenditure by one person or entity becomes income to another entity. As an analogy, consider the waves generated from a stone thrown into a lake that spread out in all directions. In economic impact analysis, these are called secondary effects and are measured through economic multipliers for each type of activity (industry sector) obtained from regional economic models

Assessment of the economic contributions of industries to the economy of Florida is important to making informed public policy decisions regarding future economic and community development, job creation, environmental regulation, labor and human resources, and taxation, among other issues. This report provides estimates of the economic contributions to the state of Florida in 2011 by a set of broadly defined industries comprising agriculture, natural resources, and related food activities. It updates and continues a series of annual studies done previously for 2006–2010 (Hodges, Rahmani, and Stevens 2011; Hodges and Rahmani 2010, 2009; Hodges, Rahmani, and Mulkey 2008).

Methods

Data for this analysis were obtained from the *IMPLAN* database for the state of Florida and its counties for 2001–2011 (MIG, Inc.), which in turn were derived from the National Income and Product Accounts for the United States (U.S. Department of Commerce, Bureau of Economic Analysis), the *Quarterly Census of Employment and Wages* (U.S. 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 complete 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 and food-related industries. 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 Florida's agricultural production and natural resources, were also included in the analysis because they are the endpoint of the market chain for the delivery of agricultural and food products to final consumers.

Economic contribution information was also re-grouped for several recognizable commodity groups that have linkages between agricultural production and processing/manufacturing sectors. These included environmental horticulture (nursery and greenhouse production, landscape services, retail garden centers); fruit and vegetable farming/processing; forestry/logging/forest product manufacturing; sugarcane/refined sugar manufacturing; livestock/animal products manufacturing; and fishing/seafood products.

The total regional economic impacts for each sector were estimated using models developed with the *IMPLAN* 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. Regional economic models were developed for the state of Florida and for all 67 counties in the state using the *IMPLAN* software and associated Florida state/county data for 2011 (MIG, Inc.). Models were constructed with econometrically estimated regional purchase coefficients representing the share of commodities purchased from local sources; social/institutional accounts for households, local/state/federal governments, and capital investment were treated as endogenous within the models.

The *IMPLAN* model includes accounts for industrial and 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 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 visitors from outside the state of Florida, which represent new money flowing into the regional economy. The total economic impacts were calculated as the sum of direct, 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 temporary/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). Note that industry output includes some double-counting of sales from one level of the market chain to the next (e.g., sales of citrus juice products by processors includes the value of citrus fruit purchased from growers), while value added does not have such double-counting because the value of intermediate inputs purchased from other sectors is netted-out (see Glossary of Economic Impact Terms).

Summary information was developed for the state of Florida, all 67 counties, and 9 multi-county regions. These functional economic areas represent core metropolitan areas and adjacent nonmetropolitan counties linked by employee commuting patterns, as defined by the U.S. Bureau of Economic Analysis (Johnson and Kort 2004). It should be noted that some Georgia counties included in the north 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*; *Wholesale food distribution* was 20 percent of *Wholesale trade*; *Retail lawn-and-garden centers* were 19 percent of *Building materials and garden stores*; *Golf courses* and *Recreational fishing* were 48 percent and 10 percent, respectively, of *Amusement and recreation services*.

Reported employment figures represent all full-time, part-time, and temporary/seasonal jobs, rather than full-time equivalent employees. All monetary values were expressed in 2011 U.S. dollars using the mid-year (July) indices for the

GDP Implicit Price Deflator, which accounts for price changes in the measurement of GDP (U.S. Department of Commerce). Note that *IMPLAN* data were unavailable for 2005. Also, note that results for 2001 to 2010 were revised in light of new information, so findings presented here do not necessarily match those previously reported (Hodges, Rahmani, and Stevens 2011; Hodges and Rahmani 2010, 2009; Hodges, Rahmani, and Mulkey 2008).

Results

Economic Contributions by Industry Groups and Sectors

Economic contributions by major industry groups and individual industry sectors in Florida for 2011 are shown in Table 1 and summarized in Figures 1 to 3. The industries are categorized in seven major groups: *Crop, Livestock, Forestry, and Fisheries Production*; *Agricultural Inputs and Services*; *Food and Kindred Products Manufacturing*; *Forest Products Manufacturing*; *Mining*; *Nature-based Recreation*; and *Food and Kindred Products Distribution*. Results are reported below for each major group, each sector within the groups, all groups combined, and for all groups, excluding *Food and Kindred Products Distribution*.

Direct industry output or sales revenues in 2011 were $130.37 billion. Foreign and domestic exports of goods and services outside of Florida totaled $47.45 billion. As a result of the indirect and induced multiplier effects arising from exports, an additional $68.53 billion in output was generated in the economy, mostly in other economic sectors, giving total output impacts estimated at $198.90 billion. Direct employment in these industries was 1.407 million full-time and part-time jobs, and total employment impacts (including multiplier effects) were estimated at 1.965 million jobs. The direct value-added impacts of these industries were $62.63 billion, and total value-added impacts were $104.30 billion. The total labor (earned) income impacts of employee wages and benefits and business proprietor income were $67.52 billion. Total property income impacts, such as rents, interest, royalties, and dividends, amounted to $24.96 billion. Total indirect business-tax impacts paid to local, state, and federal governments were $11.82 billion (Table 1).

Figure 1. Structure of economic activity in agriculture, natural resources, and related food industries in Florida in 2011

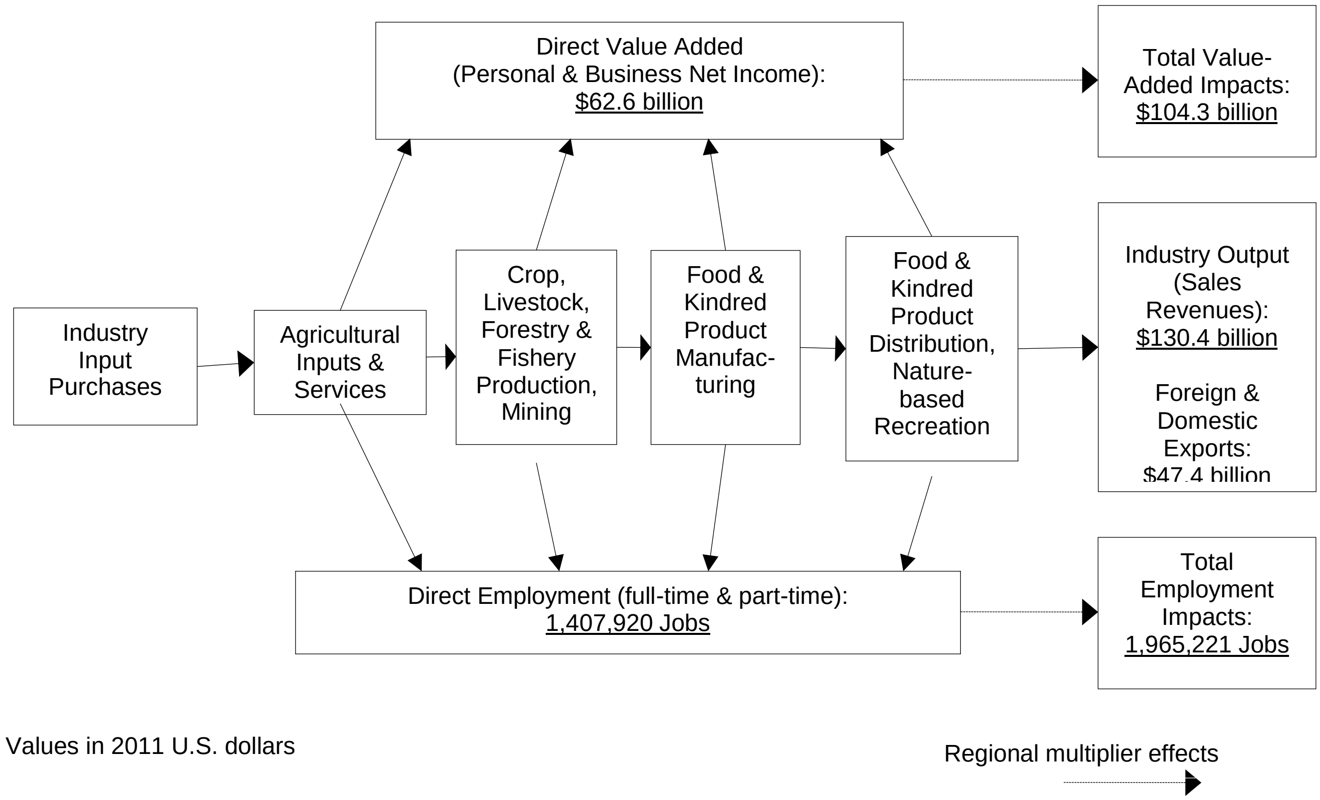
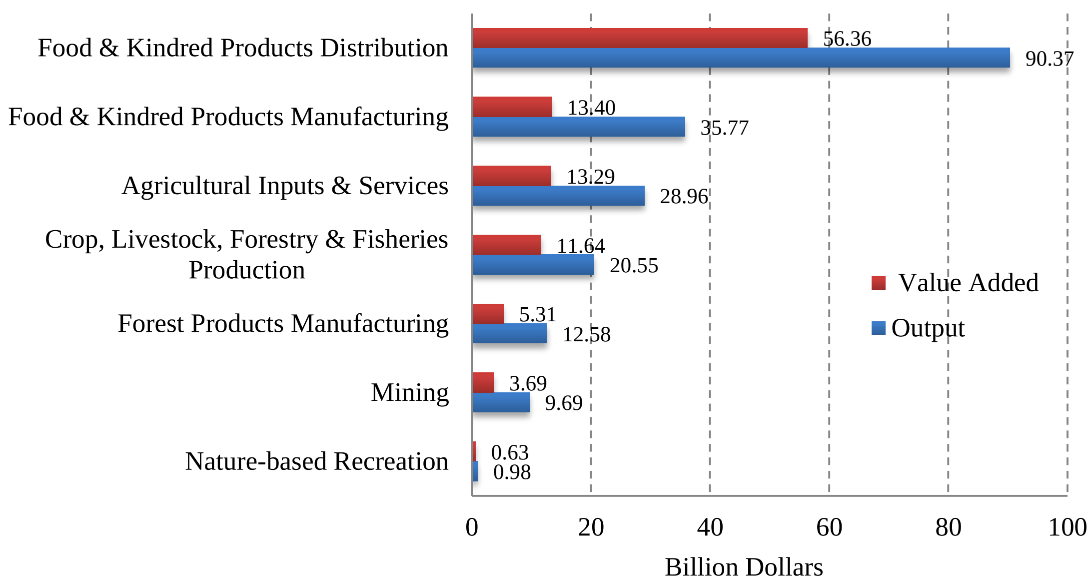
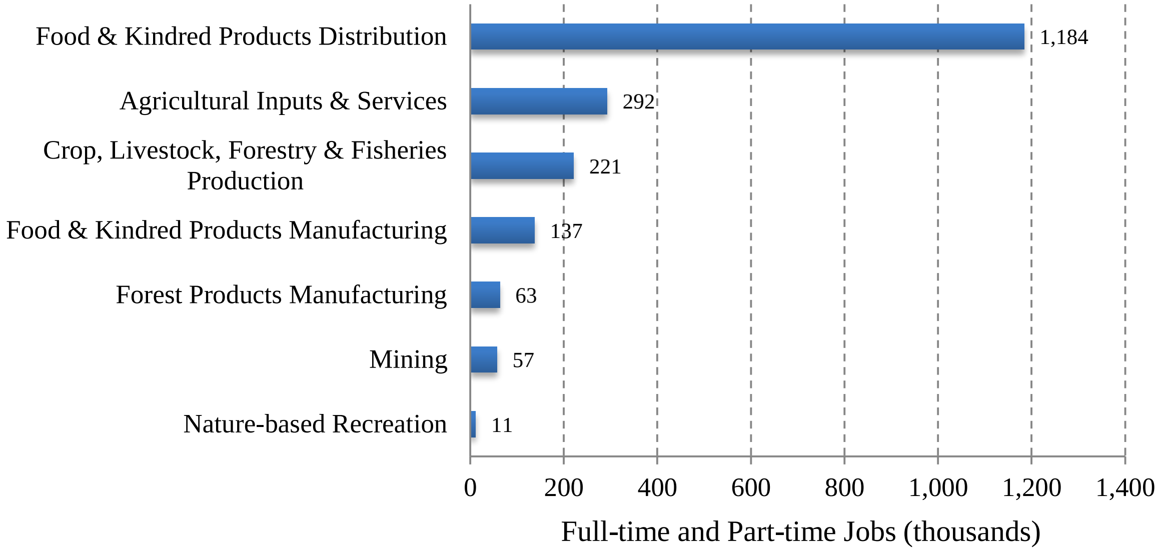


Figure 2. Output and value-added contributions of agriculture, natural resources, and related food industry groups in Florida in 2011



Source: *IMPLAN* data for Florida (MIG, Inc.). Estimates include regional multiplier effects.

Figure 3. Employment contributions of agriculture, natural resources, and related food industry groups in Florida in 2011



Source: *IMPLAN* data for Florida (MIG, Inc.). Estimates include regional multiplier effects.

Crop, Livestock, Forestry, and Fisheries Production includes sectors for the production of basic unrefined food and fiber commodities. In 2011, total output of these sectors was $10.54 billion, exports were $6.59 billion, and output impacts were $20.55 billion (Table 1, Figures 2 to 3). Direct value added was $5.44 billion and total value-added impacts were $11.64 billion. Direct employment was 130,546 jobs, and total employment impacts were 220,839 jobs (Figure 3). Labor income impacts were $7.86 billion, other property-income impacts were $3.31 billion, and indirect business-tax impacts were $470 million. Among individual industry sectors in this group, the highest value-added impacts were for *Fruit Farming* ($2.68 billion); *Greenhouse, nursery, and floriculture production* ($2.54 billion); *Vegetable and melon farming* ($2.16 billion); *Support activities for agriculture and forestry* (1.90 billion); and *Sugarcane farming* ($514 million). The highest employment impacts were for *Support activities for agriculture and forestry* (63,360 jobs); *Fruit Farming* (36,777 jobs); *Greenhouse, nursery, and floriculture production* (33,129 jobs); *Vegetable and melon farming* (27,279 jobs); and *Sugarcane farming* (18,628 jobs). Large value-added and employment impacts were also generated by the sectors *Forestry and timber tracts* ($592 million; 9,419 jobs); *Commercial fishing* ($178 million; 7,981 jobs); *Dairy cattle and milk production* ($230 million; 4,774 jobs); and C*attle ranching and farming* ($223 million; 6,374 jobs). In addition, value-added impacts of more than $100 million were observed for *All other crop farming*, *Poultry and egg production*, and *Commercial logging.*

Agricultural Inputs and Services includes a variety of sectors providing inputs or supporting services for agricultural operations or landscape management. Output impacts in 2011 by this industry group totaled $28.96 billion, including exports of $9.32 billion (Table 1, Figures 2 to 3). Direct value added was $6.41 billion and value-added impacts were $13.29 billion. Direct employment was 201,261 jobs and employment impacts were 292,142 jobs (Figure 3). Labor income impacts were $9.45 billion, other property-income impacts were $3.05 billion, and indirect business-tax impacts were $785 million. Among the leading sectors in this group, *Landscape services* had value-added impacts of $6.73 billion and employment impacts of 178,799 jobs, followed by *Fertilizer manufacturing* ($3.85 billion; 44,777 jobs); *Pest control services* ($1.42 billion; 37,738 jobs); and *Veterinary services* ($1.09 billion; 29,163 jobs). Other minor sectors in this group included *Pesticide and other agricultural chemical manufacturing*, *Farm machinery and equipment manufacturing*, and *Lawn and garden equipment manufacturing.*

Food and Kindred Products Manufacturing is a large industry group that includes 33 individual sectors for converting unrefined agricultural commodities into food products for final consumption or use. In 2011, this industry group had direct output of $23.25 billion, exports of $10.64 billion, and output impacts of $35.77 billion. Direct employment was 40,204 jobs and total employment impacts were 137,339 jobs. The industry group had direct value added of $6.02 billion, value-added impacts of $13.40 billion, labor income impacts of $6.86 billion, other property-income impacts of $4.58 billion, and indirect business-tax impacts of $1.95 billion (Table 1, Figures 2 to 3). Among individual sectors, the highest value-added and employment impacts were for *Soft drink and ice manufacturing* ($2.74 billion; 33,298 jobs); *Tobacco product manufacturing* ($3.20 billion; 13,098 jobs); *Fruit and vegetable canning, pickling, and drying* ($1.58 billion; 18,394 jobs); *Breweries* ($1.06 billion; 9,109 jobs); *Frozen Food Manufacturing* ($932 million; 11,964 jobs); *Sugarcane mills and refining* ($638 million; 10,675 jobs); and *Distilleries* ($653 million; 5,418 jobs). Other sectors with significant value-added impacts included *Bread and bakery product manufacturing* ($362 million); *Other animal food manufacturing* ($314 million); *All other food manufacturing* ($283 million); *Fluid milk and butter manufacturing* ($227 million); *Flour milling and malt manufacturing* ($226 million); *Coffee and tea manufacturing* ($160 million); and *Snack food manufacturing* ($127 million).

Forest Products Manufacturing is a group of industries for processing of raw timber or wood into finished wood and paper products. In 2011, this industry group had direct output valued at $6.92 billion; exports of $4.65 billion; output impacts of $12.58 billion; direct employment of 18,444 jobs; employment impacts of 62,929 jobs; direct value added of $1.93 billion; value-added impacts of $5.31 billion; labor income impacts of $3.34 billion; other property-income impacts of $1.62 billion; and indirect business-tax impacts of $337 million (Table 1, Figures 2 to 3). Leading sectors within this group in terms of value-added and employment impacts were *Paperboard container manufacturing* ($952 million; 11,882 jobs); *Paper mills* ($951 million; 10,170 jobs); *Sanitary paper products manufacturing* ($938 million; 8,090 jobs); *Paperboard mills* ($711 million; 7,822 jobs); *Pulp mills* ($670 million; 7,778 jobs); and *Stationary product manufacturing* ($252 million; 3,243 jobs). Other sectors with significant value-added impacts included *Coated and laminated paper packaging paper and plastics film manufacturing* ($143 million); *Sawmills and wood preservation* ($134 million); *Wood window and door manufacturing* ($127 million); and *Engineered wood member and truss manufacturing* ($118 million).

Mining is a natural-resource-based activity for the extraction of basic mineral commodities such as oil, natural gas, stone, sand, gravel, clay, phosphate, and a variety of metals. In 2011, the mining industries in Florida collectively had direct output of $4.91 billion; exports of $3.03 billion; output impacts of $9.69 billion; direct employment of 20,425 jobs; employment impacts of 56,966 jobs; direct value added of $740 million; value-added impacts of $3.69 billion; labor income impacts of $2.10 billion; other property-income impacts of $1.34 billion; and indirect business-tax impacts of $239 million (Table 1, Figures 2 to 3). The largest individual sector was *Extraction of oil and natural gas*, which generated value-added impacts of $2.08 billion and employment impacts of 39,094 jobs. Other individual sectors with significant value-added and employment impacts included *Mining and quarrying of other nonmetallic minerals* ($598 million; 5,981 jobs); *Mining and quarrying stone* ($386 million; 4,204 jobs); *Mining and quarrying of sand, gravel, and clay* ($264 million; 3,328 jobs); and *Drilling of oil and gas wells* ($170 million; 2,064 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*.

Nature-Based Recreation includes recreational activities generally tied to natural resources or managed landscapes such as golf, recreational fishing, and hunting and trapping. In 2011, this industry group in Florida had total output of $568 million; exports or sales to Florida visitors of $226 million; output impacts of $984 million; direct employment of 7,762 jobs; employment impacts of 11,296 jobs; direct value added of $363 million; value-added impacts of $626 million; labor income impacts of $375 million; other property-income impacts of $179 million; and indirect business-tax impacts of $72 million (Table 1, Figures 2 to 3). Among individual sectors, *Golf courses* had value-added impacts of $554 million and employment impacts of 9,955 jobs, followed by *Commercial hunting and trapping* ($68 million; 1,274 jobs).

Food and Kindred Products Distribution includes activities for wholesale and retail trade in agricultural, food, and related products. This 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 a perspective on the scope of the complex market chain for food and kindred products. In 2011, this industry group in Florida had a total output of $67.15 billion; exports of $12.99 billion; output impacts of $90.37 billion; direct employment of 989,278 jobs; employment impacts of 1,183,709 jobs; direct value added of $41.73 billion; value-added impacts of $56.36 billion; labor income impacts of $37.52 billion; other property-income impacts of $10.87 billion; and indirect business-tax impacts of $7.97 billion (Table 1, Figures 2 to 3). Collectively, this group represented about 54 percent of total value-added impacts and 60 percent of employment impacts for all industries included in this report. Among individual sectors within this group, *Food service establishments and drinking places* (restaurants and bars) had the greatest value-added impacts ($32.14 billion) and employment impacts (814,808 jobs), followed by *Wholesale trade in food and kindred products* ($14.29 billion; 135,219 jobs); *Retail stores, food and beverage stores* ($9.47 billion; 224,547 jobs); and *Retail lawn and garden centers* ($461 million; 9,135 jobs).

Excluding sectors for *Food and Kindred Products Distribution,* the total economic values for all other agriculture, natural resources, and related food industries were $63.22 billion in direct output, including exports of $34.46 billion; total output impacts of $108.53 billion; direct employment of 418,642 jobs; employment impacts of 781,512 jobs; direct value added of $20.90 billion; value-added impacts of $47.94 billion; labor income impacts of $30.00 billion; other property-income impacts of $14.09 billion; and indirect business-tax impacts of $3.85 billion (subtotaled in Table 1).

Table 1. Summary of economic contributions of agriculture, natural resources, and related food industry groups and sectors in Florida in 2011

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	**130,546**	**220,839**	**10,537**	**20,551**	**6,595**	**5,442**	**11,639**	**7,856**	**3,314**	**470**
Support activities for agriculture and forestry	50,138	63,360	1,249	2,869	925	906	1,905	1,748	47	110
Greenhouse, nursery, and floriculture production	15,902	33,129	1,935	3,952	1,215	1,273	2,537	1,834	614	89
Fruit farming	14,402	36,777	2,220	4,593	1,548	1,198	2,678	1,644	945	88
Sugarcane and sugar beet farming	14,214	18,628	509	993	329	218	514	270	232	12
Vegetable and melon farming	10,760	27,279	1,925	3,750	1,199	1,022	2,159	1,297	782	79
Commercial fishing	6,510	7,981	184	361	163	69	178	102	65	11
Dairy cattle and milk production	4,397	4,774	559	604	42	203	230	51	181	-1
Cattle ranching and farming	4,122	6,374	488	764	254	82	223	122	96	5
Animal production, except cattle and poultry and eggs	2,867	2,911	102	107	4	51	54	22	34	-1
Commercial logging	2,770	3,357	187	253	53	75	115	117	-9	7
Forestry, forest products, and timber tract production	1,517	9,419	447	1,117	447	165	592	366	169	57
All other crop farming	1,462	3,241	268	468	158	71	193	120	69	4
Poultry and egg production	752	1,801	363	494	164	73	149	94	50	5
Cotton farming	456	1,321	83	183	78	27	87	54	29	5
Tree nut farming	148	284	12	26	9	7	16	10	5	1
Oilseed farming	83	148	6	13	6	3	7	3	4	0
Grain farming	48	56	2	3	1	1	1	1	1	0
Agricultural Inputs & Services	**201,261**	**292,142**	**17,036**	**28,956**	**9,318**	**6,411**	**13,287**	**9,455**	**3,048**	**785**
Landscape services	139,957	178,799	7,352	11,977	3,148	3,847	6,727	4,981	1,389	357
Pest control services	29,540	37,738	1,552	2,528	664	812	1,420	1,051	293	75
Veterinary services	26,431	29,163	1,507	1,837	192	888	1,094	909	127	57
Fertilizer manufacturing	4,916	44,777	6,312	12,126	5,170	771	3,855	2,409	1,160	286
Farm machinery and equipment manufacturing	225	609	153	201	41	58	88	46	38	3
Lawn and garden equipment manufacturing	110	112	47	47	0	13	13	7	5	0
Pesticide and other agricultural chemical manufacturing	81	945	115	241	103	23	92	51	35	6
Food & Kindred Products Manufacturing	**40,204**	**137,339**	**23,252**	**35,769**	**10,642**	**6,022**	**13,396**	**6,863**	**4,581**	**1,951**
Bread and bakery product manufacturing	7,295	7,705	1,173	1,223	35	332	362	283	67	12
Soft drink and ice manufacturing	6,627	33,298	4,716	8,598	3,916	576	2,743	1,780	782	181
Fruit and vegetable canning, pickling, and drying	3,393	18,394	1,783	3,758	1,602	415	1,576	963	523	91
Frozen food manufacturing	3,009	11,964	1,012	2,154	919	239	932	615	259	59
All other food manufacturing	2,651	4,107	827	1,010	134	173	283	183	90	10
Fluid milk and butter manufacturing	1,745	1,885	1,782	1,801	13	217	227	101	119	6
Poultry processing	1,740	2,024	636	675	34	87	109	69	38	3

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 - - - - - - - - - - - - - - - - - -*							
Tobacco product manufacturing	1,643	13,098	3,637	5,030	918	2,305	3,202	719	1,558	925
Animal (except poultry) slaughtering, rendering, and processing	1,609	2,459	482	582	89	46	94	93	-2	4
Seafood product preparation and packaging	1,419	1,536	517	531	14	74	82	68	12	2
Seasoning and dressing manufacturing	1,321	1,566	712	746	30	93	113	82	27	4
Cookie, cracker, and pasta manufacturing	1,030	1,122	437	449	11	92	99	53	44	2
Sugarcane mills and refining	973	10,675	846	1,815	635	115	638	410	187	41
Ice cream and frozen dessert manufacturing	918	949	326	330	3	48	50	34	15	1
Breweries	760	9,109	962	1,984	738	426	1,065	504	275	286
Snack food manufacturing	702	820	503	519	14	118	127	45	79	2
Coffee and tea manufacturing	679	1,303	555	632	56	113	160	88	66	6
Other animal food manufacturing	594	3,844	632	1,063	580	59	314	191	100	23
Confectionery manufacturing from purchased chocolate	497	1,162	154	245	88	22	74	44	26	4
Non-chocolate confectionery manufacturing	350	689	125	172	41	22	48	30	16	2
Distilleries	323	5,418	454	1,035	354	268	653	283	111	259
Flour milling and malt manufacturing	197	2,300	254	533	214	56	226	136	74	16
Tortilla manufacturing	171	171	33	33	0	8	8	6	2	0
Flavoring syrup and concentrate manufacturing	157	221	291	300	8	73	78	12	66	1
Wineries	147	384	53	83	21	12	31	19	6	6
Chocolate and confectionery manufacturing from cacao beans	125	388	91	127	36	7	27	17	8	2
Fats and oils refining and blending	42	510	167	229	120	14	50	26	21	3
Dog and cat food manufacturing	41	58	49	51	2	9	10	3	6	0
Cheese manufacturing	34	53	27	30	2	2	3	2	1	0
Dry, condensed, and evaporated dairy product manufacturing	8	66	6	14	6	1	5	3	2	0
Soybean and other oilseed processing	4	35	8	12	8	1	3	2	1	0
Wet corn milling	1	25	3	6	3	1	3	1	1	0
Forest Products Manufacturing	**18,444**	**62,929**	**6,924**	**12,580**	**4,650**	**1,926**	**5,306**	**3,345**	**1,624**	**337**
Paperboard container manufacturing	2,890	11,882	1,129	2,266	1,123	255	952	648	236	68
Wood windows and doors and millwork manufacturing	2,570	2,690	412	428	10	118	127	115	9	3
Sawmills and wood preservation	2,036	2,629	498	566	56	94	134	109	19	6
Sanitary paper product manufacturing	1,752	8,090	1,356	2,171	799	445	938	471	423	44
Wood container and pallet manufacturing	1,546	1,611	186	194	6	63	68	59	7	2
Engineered wood member and truss manufacturing	1,450	1,901	277	335	38	85	118	76	38	4
Paper mills	1,115	10,170	879	2,043	879	260	951	569	316	66

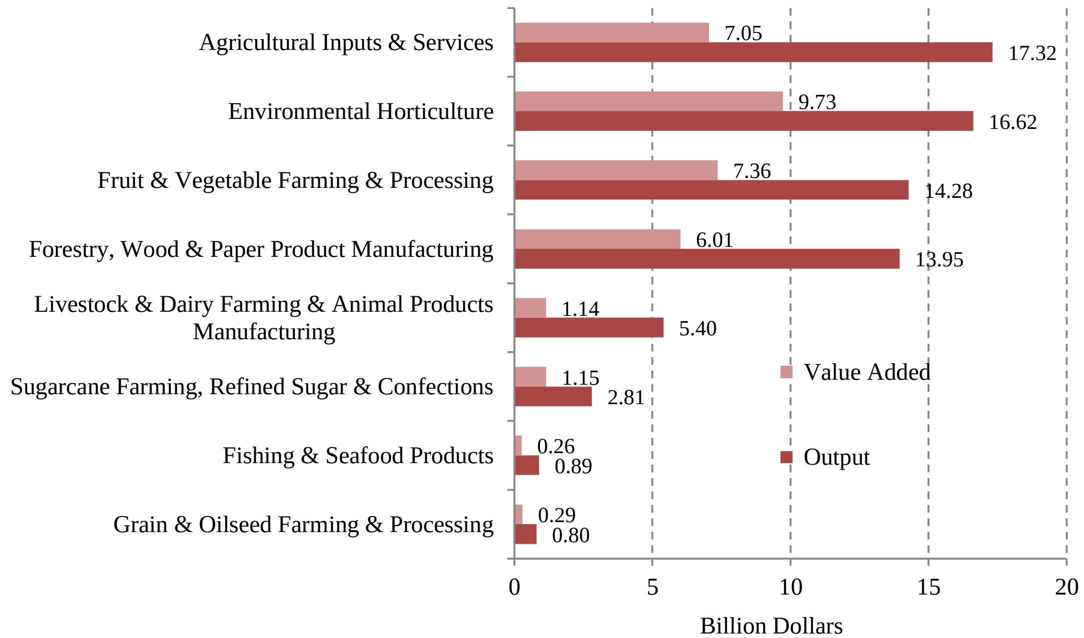
Industry Group / Sector	Employment		Output (Revenue)		Exports	Value Added		Labor Income Impacts	Other Property Income Impacts	Indirect Business Tax Impacts
	Direct	Total Impacts	Direct	Total Impacts		Direct	Total Impacts			
	Full-time and Part-time Jobs		*- - - - - - - - - - - - - - - - - - Million Dollars - - - - - - - - - - - - - - - - - -*							
Veneer and plywood manufacturing	982	1,185	232	257	17	73	88	58	20	10
Stationery product manufacturing	869	3,243	267	566	256	68	252	170	66	16
Pulp mills	802	7,778	611	1,489	611	160	670	432	189	50
Paperboard Mills	752	7,822	639	1,537	605	179	711	434	225	51
All other miscellaneous wood product manufacturing	608	765	99	119	12	31	42	31	11	1
Coated and laminated paper, packaging paper and plastics film manufacturing	401	1,651	155	318	151	46	143	94	41	8
All other paper bag and coated and treated paper manufacturing	249	335	77	88	11	19	26	21	4	1
All other converted paper product manufacturing	239	945	72	161	72	18	73	48	20	5
Reconstituted wood product manufacturing	184	233	36	42	5	11	15	13	2	1
Mining	**20,425**	**56,966**	**4,908**	**9,692**	**3,027**	**740**	**3,686**	**2,105**	**1,342**	**239**
Extraction of oil and natural gas	15,220	39,094	3,565	6,766	1,954	98	2,076	1,203	731	142
Mining and quarrying other nonmetallic minerals	1,897	5,981	542	1,051	340	285	598	323	239	36
Mining and quarrying sand, gravel, clay, and ceramic and refractory minerals	1,124	3,328	184	459	184	95	264	167	81	16
Mining and quarrying stone	1,067	4,204	248	633	248	149	386	201	163	22
Support activities for oil and gas operations	463	1,367	76	188	70	25	93	64	23	6
Drilling oil and gas wells	351	2,064	180	406	176	36	170	98	60	11
Mining gold, silver, and other metal ore	139	234	62	74	8	42	49	14	32	3
Support activities for other mining	139	633	43	103	43	8	45	30	12	3
Mining coal	24	62	7	12	3	3	6	3	2	1
Nature-based Recreation	**7,762**	**11,296**	**568**	**984**	**226**	**363**	**626**	**375**	**179**	**72**
Golf courses	6,507	9,955	417	823	219	298	554	364	132	59
Commercial hunting and trapping	1,211	1,274	148	155	5	64	68	9	47	13
Recreational fishing & hunting guides	44	67	3	6	1	2	4	2	1	0
Subtotal excluding distribution sectors	**418,642**	**781,512**	**63,225**	**108,531**	**34,458**	**20,904**	**47,941**	**29,999**	**14,089**	**3,853**
Food & Kindred Products Distribution	**989,278**	**1,183,709**	**67,147**	**90,367**	**12,989**	**41,728**	**56,358**	**37,518**	**10,870**	**7,970**
Food services and drinking places	700,531	814,808	41,385	55,213	8,063	23,494	32,141	21,835	6,688	3,618
Retail Stores, food and beverage	199,728	224,547	11,069	13,986	1,496	7,607	9,466	6,896	789	1,780
Wholesale trade, food & kindred products	80,208	135,219	14,044	20,481	3,411	10,190	14,290	8,459	3,358	2,474
Retail lawn and garden centers	8,811	9,135	649	687	20	436	461	328	35	98
Grand Total	**1,407,920**	**1,965,221**	**130,372**	**198,898**	**47,447**	**62,632**	**104,299**	**67,516**	**24,959**	**11,823**

Source: *IMPLAN* data for Florida (MIG, Inc.). Total impact estimates include regional multiplier effects.

Economic Contributions by Agriculture and Natural Resource Commodity Groups

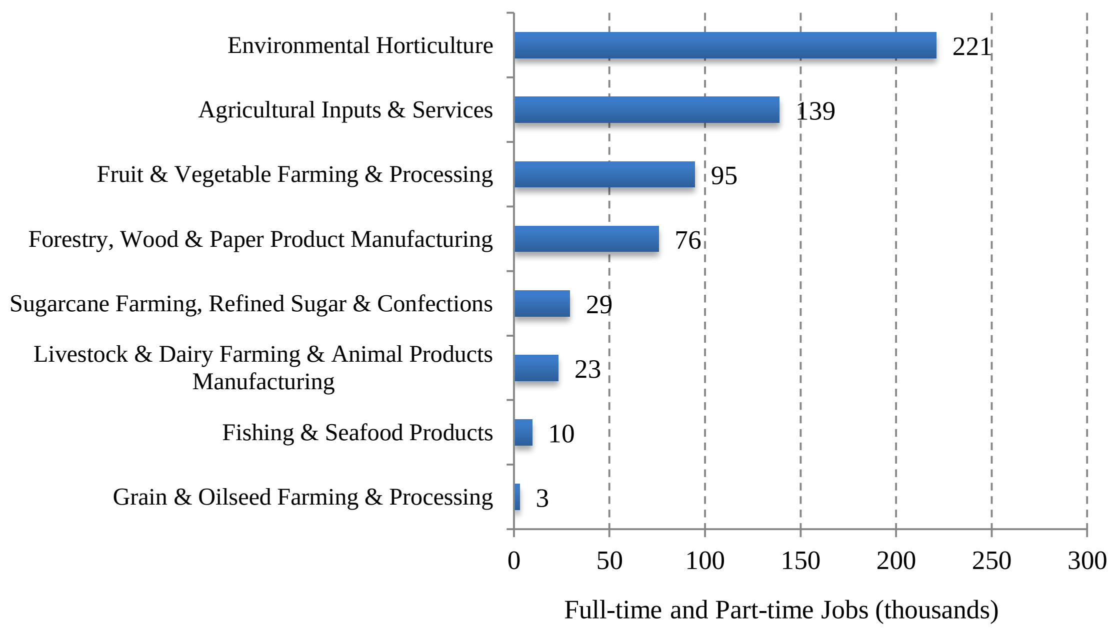
In addition to the industry groups noted above, information on economic contributions was reorganized to evaluate groups of food and fiber commodities having identifiable market-chain linkages between producers, manufacturers, and service sectors. In this section, some sectors are regrouped to reflect these linkages, with results summarized in Figures 4 to 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 $9.72 billion and employment impacts of 221,063 jobs. ***Agricultural Inputs and Services***, including *Fertilizer manufacturing*, *Farm machinery and equipment manufacturing*, *Lawn and garden equipment, and Pesticide and other agricultural chemical manufacturing*, had combined value-added impacts of $7.04 billion and employment impacts of 138,965 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 $7.36 billion and employment impacts of 94,698 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 $6.01 billion and employment impacts of 75,704 jobs. ***Sugarcane Farming and Refined Sugar and Confections Manufacturing*** had combined value-added impacts of $1.15 billion and employment impacts of 29,303 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 $1.14 billion and employment impacts of 23,296 jobs. ***Fishing and Seafood Products*** combined had value-added impacts of $260 million and employment impacts of 9,518 jobs. The group ***Grain and Oilseed Farming and Processing*** had combined value-added and employment impacts of $291 million and 3,073 jobs.

Figure 4. Output and value-added contributions of food and fiber commodity groups in Florida in 2011



Source: *IMPLAN* data for Florida (MIG, Inc.). Estimates include regional multiplier effects.

Figure 5. Employment contributions of food and fiber commodity groups in Florida in 2011



Source: *IMPLAN* data for Florida (MIG, Inc.). Estimates include regional multiplier effects.

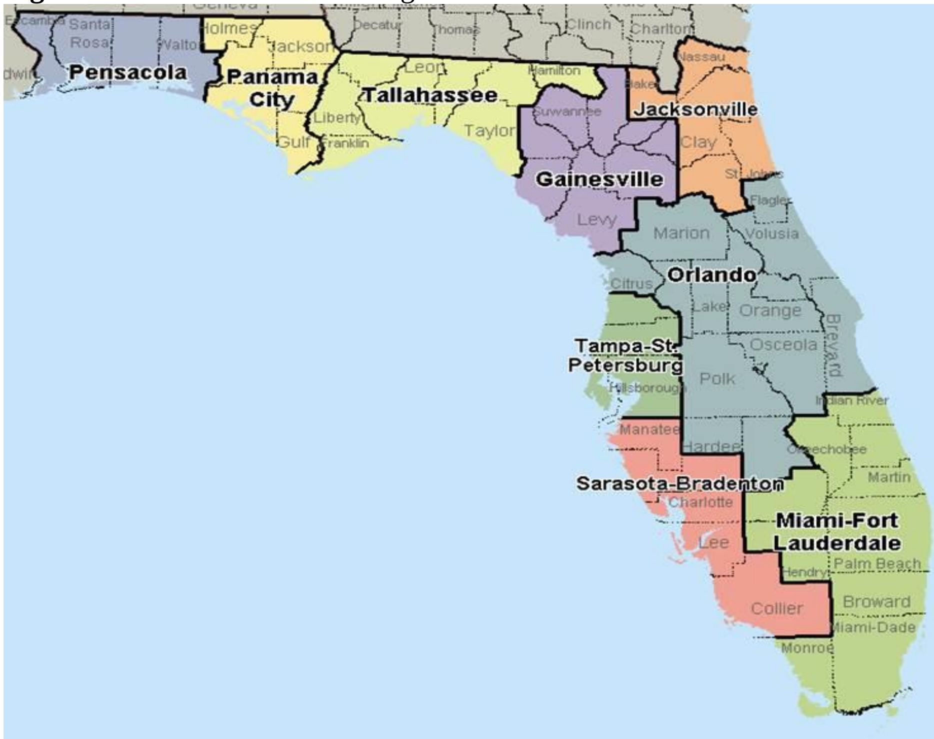
Economic Contributions in Florida Regions and Counties

Regional impacts of agriculture, natural resources, and related food industries in 2011 were evaluated for all 67 Florida counties and 9 multi-county economic regions as shown in Figure 6, with results summarized in Tables 2 to 3, and Figures 7 to 9. Value-added and employment impacts were highest in the Miami-Ft. Lauderdale region ($34.82 billion; 641,007 jobs), followed by Orlando ($25.05 billion; 489,440 jobs); Tampa-St. Petersburg ($15.04 billion; 273,410 jobs); Jacksonville ($10.76 billion; 161,615 jobs); Sarasota-Bradenton ($9.63 billion; 199,048 jobs); Pensacola ($2.82 billion; 64,959 jobs); Tallahassee ($2.39 billion; 48,526 jobs); Gainesville ($2.22 billion; 53,112 jobs); and Panama City ($1.56 billion; 34,103 jobs).

Among individual Florida counties, the eight largest counties in terms of value-added impacts and employment impacts in 2009 were Miami-Dade ($13.20 billion; 222,402 jobs), followed by Hillsborough ($9.27 billion; 148,158 jobs); Orange ($8.31 billion; 155,653 jobs); Broward ($8.03 billion; 159,638 jobs); Palm Beach ($8.20 billion; 148,994 jobs); Duval ($7.91 billion; 110,550 jobs); Polk ($6.10 billion; 93,237 jobs); and Pinellas ($4.32 billion; 87,981 jobs). Fifteen other counties with value-added impacts exceeding $1 billion were Lee ($2.51 billion); Manatee ($2.36 billion); Collier ($2.17 billion); Seminole ($2.00 billion); Volusia ($1.65 billion); Sarasota ($1.63 billion); Brevard ($1.40 billion); Lake ($1.38 billion); Escambia ($1.23 billion); Marion ($1.17 billion); Bay ($1.15 billion); St. Lucie ($1.13 billion); Pasco ($1.06 billion); Indian River ($1.06 billion); and Alachua ($1.04 billion). Thematic maps of the total employment and value-added impacts for Florida counties are shown in Figures 8 and 9, respectively.

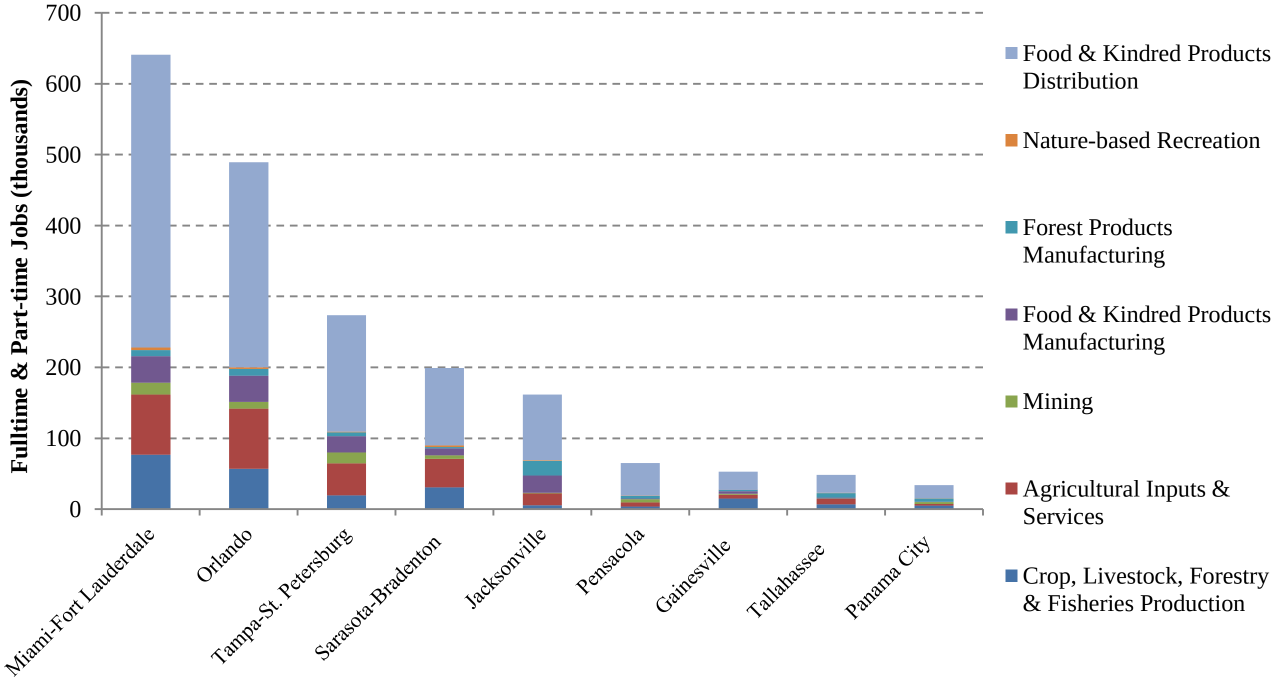
Additional detailed information on economic contributions in individual Florida counties is available at http://www.fred.ifas.ufl.edu/economic-impact-analysis/Florida-county-profiles-2011.pdf.

Figure 6. Functional economic regions of Florida



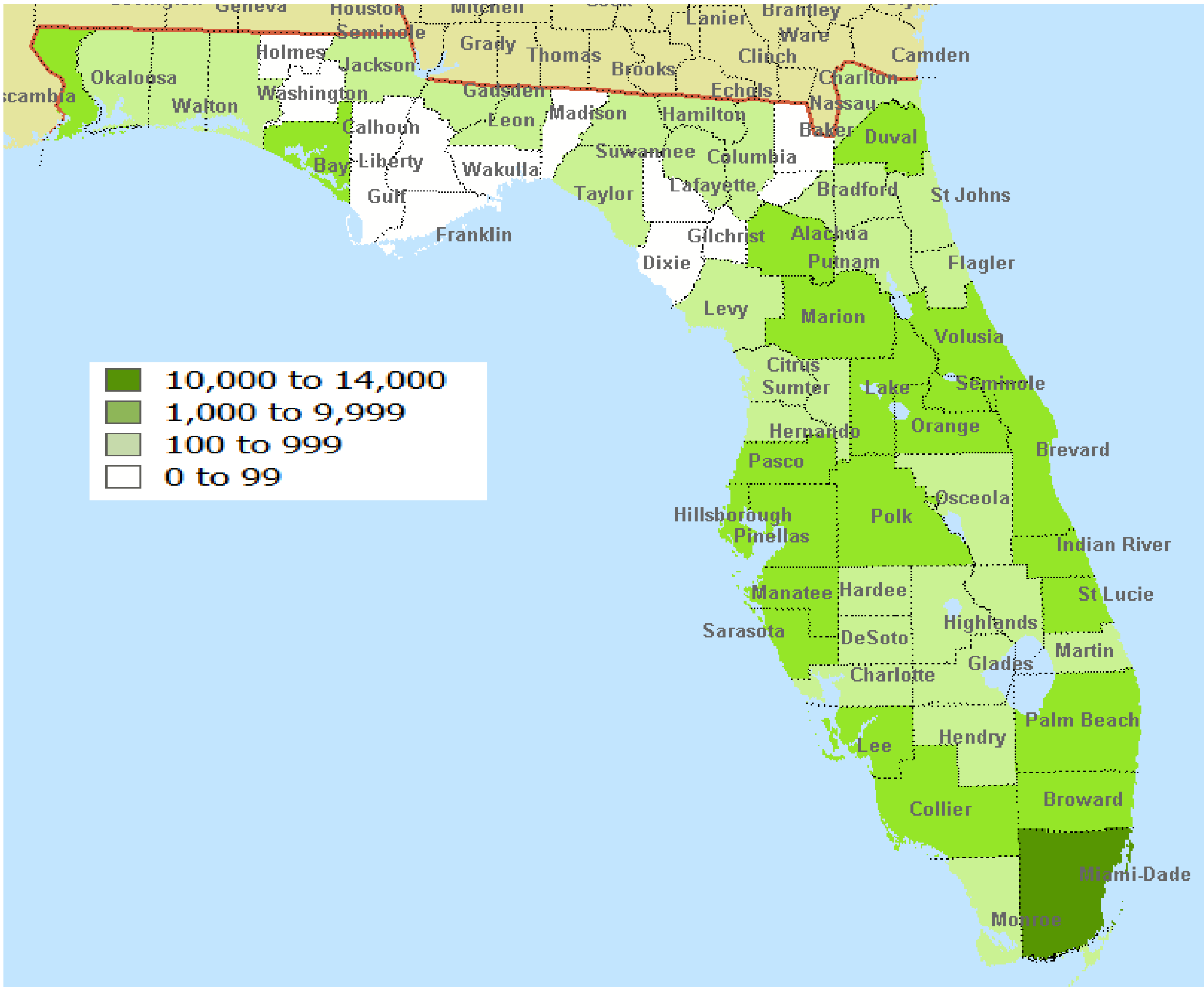
Adapted from U.S. Commerce Department, Bureau of Economic Analysis (Johnson and Kort 2004).

Figure 7. Employment contributions of agriculture, natural resources, and related food industries in Florida regions in 2011



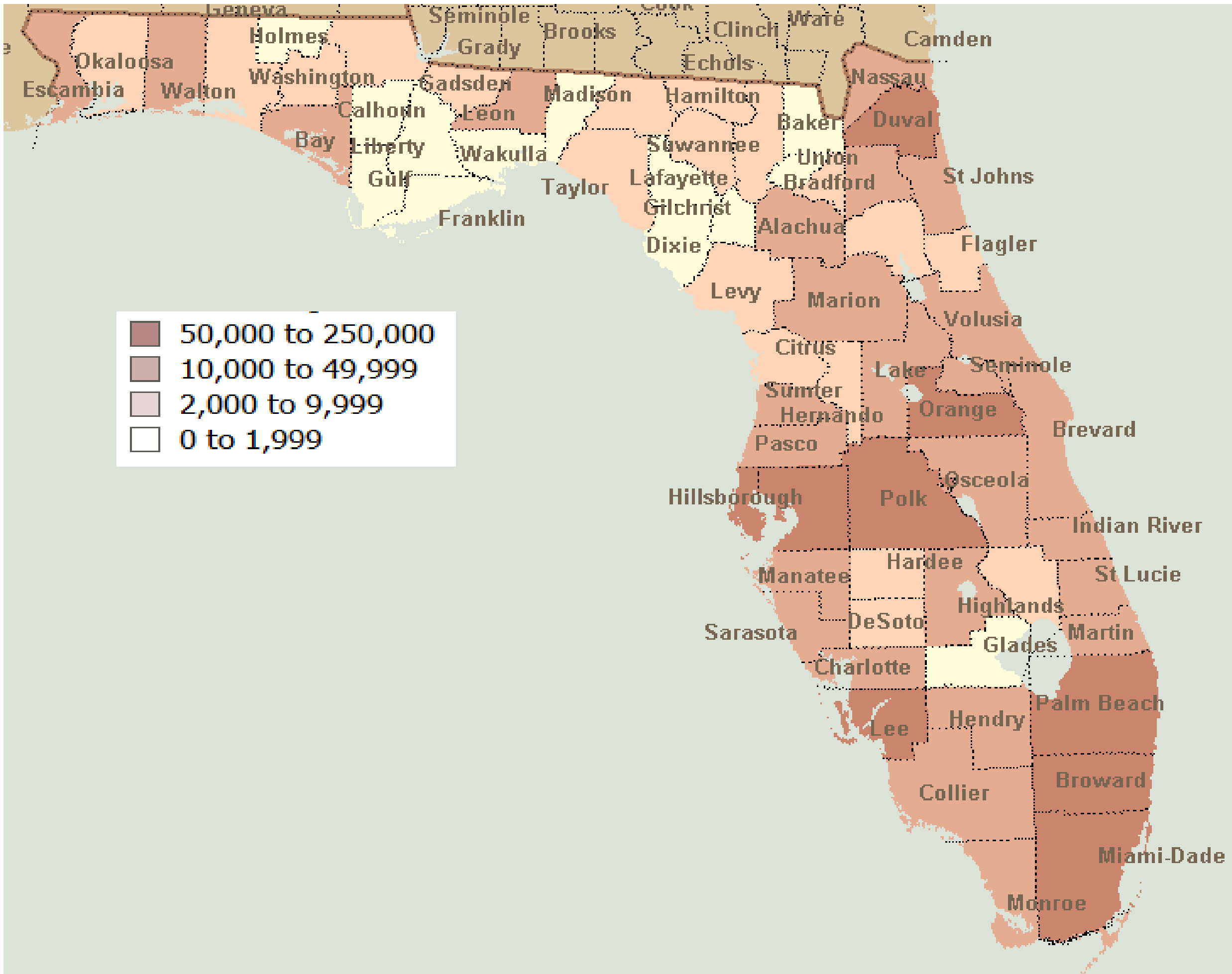
Source: *IMPLAN* data for Florida (MIG, Inc.). Estimates include regional multiplier effects.

Figure 8. Map of total value-added contributions by agriculture, natural resources, and related food industries in Florida counties in 2011



Values given in million dollars. Estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Figure 9. Map of total employment contributions by agriculture, natural resources, and related food industries in Florida counties in 2011



Estimates represent full-time and part-time jobs, and include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Table 2. Summary of economic contributions of agriculture, natural resources, and related food industries in Florida regions and counties in 2011

Region / County	Direct Employ-ment (Jobs)	Direct Output ($M)	Direct Value Added ($M)	Exports ($M)	Output Impacts ($M)	Employ-ment Impacts (Jobs)	Value-Added Impacts ($M)	Labor Income Impacts ($M)	Other Property Income Impacts ($M)	Indirect Business Tax Impacts ($M)
Gainesville	**40,312**	**3,784.6**	**1,417.4**	**2,015.6**	**5,229.6**	**53,112**	**2,221.4**	**1,310.8**	**675.5**	**218.4**
Alachua	21,538	1,441.0	682.3	508.1	2,074.5	27,223	1,041.0	661.6	248.0	127.6
Bradford	1,772	203.1	95.5	112.9	270.4	2,353	133.0	64.1	57.1	9.7
Columbia	4,501	365.4	151.6	150.3	522.1	6,093	240.2	140.8	72.3	24.9
Dixie	1,217	133.6	41.3	11.2	148.8	1,356	51.1	34.6	13.1	2.9
Gilchrist	1,196	192.9	57.0	148.3	274.5	1,706	97.6	50.7	41.6	5.4
Lafayette	614	115.1	40.5	93.6	139.8	771	54.1	20.1	32.6	2.3
Levy	2,870	189.8	90.1	95.5	304.4	3,961	161.4	112.5	34.2	12.1
Suwannee	5,895	1,055.7	237.9	833.1	1,371.2	8,556	405.8	204.6	163.7	30.9
Union	709	88.0	21.2	62.7	123.9	1,093	37.1	21.7	12.8	2.5
Jacksonville	**104,450**	**13,291.1**	**6,452.1**	**7,478.0**	**20,305.8**	**161,615**	**10,755.7**	**6,029.4**	**3,091.2**	**1,630.7**
Baker	1,039	64.5	30.0	17.1	83.1	1,241	40.3	21.7	13.6	4.6
Clay	9,676	670.0	311.9	145.0	817.8	11,072	395.8	252.0	89.6	52.4
Duval	69,320	9,472.7	4,794.6	5,646.9	14,493.2	110,550	7,908.2	4,266.8	2,284.0	1,381.2
Nassau	5,272	865.9	334.7	599.1	1,653.4	11,269	815.0	522.1	224.3	65.2
Putnam	4,823	1,179.1	410.3	657.7	1,781.2	9,364	754.3	396.2	303.2	32.2
St. Johns	14,320	1,038.9	570.6	412.2	1,477.0	18,119	842.0	570.6	176.6	95.0
Miami-Fort Lauderdale	**467,894**	**41,374.5**	**21,653.1**	**17,259.3**	**62,543.4**	**641,007**	**34,824.8**	**23,117.4**	**7,926.7**	**3,685.9**
Broward	123,490	9,882.8	5,329.3	3,268.4	14,249.6	159,638	8,030.2	5,381.5	1,684.3	971.4
Glades	1,104	174.5	64.5	135.7	300.6	1,814	132.2	66.5	56.9	3.4
Hendry	8,190	803.3	397.2	634.1	1,556.4	15,280	846.8	612.9	206.2	18.5
Indian River	14,607	1,088.9	582.1	575.5	1,841.7	21,209	1,059.8	700.5	273.4	66.8
Martin	14,146	1,187.3	579.2	540.1	1,877.3	19,816	996.4	624.7	277.6	86.4
Miami-Dade	164,143	15,754.5	8,585.3	5,981.0	23,039.1	222,402	13,197.4	8,632.6	2,963.6	1,576.4
Monroe	15,773	1,279.2	491.2	923.9	2,048.9	23,609	905.5	634.7	190.9	90.7
Okeechobee	3,890	598.7	170.0	418.3	893.9	6,226	326.1	213.4	92.3	18.6
Palm Beach	106,880	9,312.4	4,787.4	4,245.5	14,686.3	148,994	8,200.4	5,544.1	1,887.4	753.7
St. Lucie	15,671	1,293.0	666.9	536.8	2,049.7	22,018	1,130.0	706.6	294.1	100.0
Orlando	**347,135**	**31,910.0**	**14,622.5**	**15,063.5**	**49,512.4**	**489,440**	**25,047.3**	**16,254.3**	**6,054.4**	**3,092.9**
Brevard	30,486	2,011.2	1,102.2	179.7	2,505.8	34,941	1,398.4	896.1	291.7	201.7
Citrus	6,387	389.2	205.1	77.3	503.4	7,555	271.4	175.1	58.7	37.3
Flagler	4,534	303.3	169.1	83.8	412.5	5,452	236.4	153.1	55.6	25.8
Hardee	4,770	500.4	238.9	379.5	900.9	8,391	479.8	278.4	179.8	13.3
Highlands	9,560	797.7	372.4	479.3	1,462.5	15,965	748.9	484.8	209.3	40.0
Lake	19,059	1,906.4	744.1	940.9	3,060.3	28,809	1,380.7	834.0	409.9	110.3
Marion	21,684	1,640.6	754.6	623.5	2,347.9	28,339	1,168.9	768.4	268.1	119.5
Orange	116,492	9,720.2	5,081.8	5,057.7	14,855.3	155,653	8,305.9	5,669.6	1,786.9	821.6
Osceola	17,714	1,241.4	656.4	506.3	1,779.3	22,235	984.8	639.4	230.9	107.0
Polk	46,444	8,320.0	2,640.1	5,137.1	14,398.4	93,237	6,096.0	3,767.9	1,654.1	1,155.4

Region / County	Direct Employ-ment (Jobs)	Direct Output ($M)	Direct Value Added ($M)	Exports ($M)	Output Impacts ($M)	Employ-ment Impacts (Jobs)	Value-Added Impacts ($M)	Labor Income Impacts ($M)	Other Property Income Impacts ($M)	Indirect Business Tax Impacts ($M)
Seminole	31,142	2,371.4	1,294.0	881.3	3,530.2	40,619	2,005.4	1,316.0	453.3	231.0
Sumter	6,355	544.0	210.8	185.3	743.3	8,050	316.0	219.5	62.5	32.5
Volusia	32,507	2,164.2	1,152.9	531.9	3,012.4	40,194	1,654.8	1,051.9	393.6	197.5
Panama City	**23,364**	**2,103.2**	**849.1**	**1,105.7**	**3,354.0**	**34,103**	**1,556.8**	**952.2**	**432.5**	**164.9**
Bay	16,036	1,461.9	608.2	762.1	2,410.7	23,840	1,152.1	704.4	314.3	128.2
Calhoun	879	79.1	32.5	48.0	121.7	1,291	59.0	45.2	10.4	5.4
Gulf	741	41.7	22.8	9.3	53.7	859	30.0	20.9	5.2	3.9
Holmes	1,291	78.3	25.5	39.0	109.9	1,781	40.9	17.4	18.5	3.9
Jackson	2,974	348.2	127.5	202.7	520.7	4,283	221.9	123.9	76.4	16.5
Washington	1,443	94.1	32.6	44.7	137.4	2,049	53.1	40.4	7.8	7.1
Pensacola	**49,256**	**3,769.0**	**1,731.3**	**1,509.9**	**5,664.3**	**64,959**	**2,822.2**	**1,757.3**	**720.5**	**313.0**
Escambia	18,743	1,562.5	705.8	627.1	2,450.8	26,031	1,235.3	779.8	316.4	135.7
Okaloosa	16,989	1,223.7	562.2	464.9	1,811.6	21,798	873.9	528.5	220.5	101.1
Santa Rosa	7,363	492.2	222.6	115.0	675.2	9,022	329.7	213.4	75.8	40.4
Walton	6,160	490.5	240.7	302.8	726.8	8,108	383.4	235.6	107.7	35.7
Sarasota-Bradenton	**147,569**	**11,304.3**	**5,867.1**	**4,613.2**	**17,319.3**	**199,048**	**9,633.8**	**6,614.4**	**2,074.4**	**886.4**
Charlotte	10,518	666.4	332.7	173.9	968.3	13,286	505.1	330.5	108.7	57.6
Collier	30,577	2,257.3	1,291.7	1,105.6	3,561.2	41,534	2,168.0	1,592.5	398.2	182.0
De Soto	4,999	459.5	228.6	350.9	840.8	8,259	462.6	298.7	140.4	10.2
Lee	44,843	3,195.2	1,705.8	981.7	4,503.3	56,049	2,515.3	1,689.5	546.2	275.8
Manatee	26,617	2,732.3	1,226.7	1,369.1	4,568.8	42,438	2,355.8	1,608.8	536.3	177.0
Sarasota	30,014	1,993.7	1,081.6	631.9	2,876.9	37,482	1,627.1	1,094.4	344.6	183.8
Tallahassee	**33,522**	**3,603.2**	**1,325.7**	**2,068.7**	**5,677.0**	**48,526**	**2,395.0**	**1,525.7**	**628.1**	**225.5**
Franklin	1,245	110.6	40.3	69.4	136.0	1,486	55.2	35.1	13.1	6.5
Gadsden	2,629	341.9	175.5	214.6	546.1	4,182	308.8	210.2	76.8	21.4
Hamilton	1,213	812.7	116.1	607.3	1,365.4	3,400	323.2	193.5	106.9	7.0
Jefferson	994	85.3	40.7	53.6	137.4	1,489	71.9	36.7	29.9	4.3
Leon	21,593	1,260.2	668.9	356.1	1,702.6	25,457	931.6	593.5	207.7	129.4
Liberty	454	77.1	24.9	49.6	107.9	690	42.1	27.4	11.3	2.4
Madison	1,696	219.4	54.3	174.1	330.6	2,774	107.0	80.4	19.4	9.1
Taylor	2,332	622.1	173.3	522.4	1,254.8	7,430	512.3	322.8	151.4	39.8
Wakulla	1,367	74.1	31.6	21.7	96.3	1,618	43.0	26.1	11.5	5.6
Tampa-St. Petersburg	**192,799**	**19,062.9**	**8,605.0**	**8,428.6**	**29,292.3**	**273,410**	**15,041.4**	**9,954.6**	**3,355.5**	**1,605.8**
Hernando	9,056	571.7	294.3	107.4	753.3	10,804	400.0	238.5	99.4	55.9
Hillsborough	95,440	11,450.5	5,054.8	6,010.2	18,240.8	148,158	9,268.2	6,203.4	2,029.3	941.0
Pasco	21,648	1,491.3	737.3	407.4	2,040.6	26,468	1,055.8	696.8	224.7	126.7
Pinellas	66,655	5,549.4	2,518.6	1,903.7	8,257.7	87,981	4,317.5	2,815.9	1,002.1	482.2
Total All Regions	**1,406,301**	**130,203**	**62,523**	**59,543**	**198,898**	**1,965,221**	**104,299**	**67,516**	**24,959**	**11,823**

Source: *IMPLAN* data for Florida (MIG, Inc.). Impact estimates include regional multiplier effects.

Table 3. Employment contributions of agriculture, natural resources, and related food industry groups in Florida regions and counties in 2011

Region / County	Crop, Livestock, Forestry & Fisheries Production	Agricultural Inputs & Services	Mining	Food & Kindred Products Manufact.	Forest Products Manufact.	Nature-based Recreation	Food & Kindred Products Distribution	Total All Industries
				Full-time and Part-time Jobs				
Gainesville	**14,842**	**5,717**	**1,186**	**3,577**	**1,705**	**303**	**25,783**	**53,112**
Alachua	3,055	3,959	771	474	778	26	18,160	27,223
Bradford	668	193	195	120	118	35	1,024	2,353
Columbia	1,895	302	144	435	197	31	3,089	6,093
Dixie	617	57	4	1	340	1	335	1,356
Gilchrist	895	206	8	202	29	22	345	1,706
Lafayette	451	138	14	11	11	28	118	771
Levy	2,417	250	18	26	16	5	1,228	3,961
Suwannee	4,370	484	29	2,264	15	119	1,274	8,556
Union	474	128	3	44	200	35	209	1,093
Jacksonville	**5,526**	**16,635**	**919**	**24,269**	**21,031**	**651**	**92,585**	**161,615**
Baker	352	88	0	0	22	0	779	1,241
Clay	479	1,935	40	225	25	46	8,323	11,072
Duval	1,160	11,286	317	23,810	9,487	215	64,275	110,550
Nassau	1,032	661	0	43	5,802	59	3,672	11,269
Putnam	1,194	572	86	14	5,168	86	2,244	9,364
St. Johns	1,309	2,092	476	177	528	246	13,292	18,119
Miami-Fort Lauderdale	**76,869**	**84,654**	**16,943**	**37,142**	**8,675**	**3,654**	**413,071**	**641,007**
Broward	2,348	25,544	3,162	7,715	675	838	119,356	159,638
Glades	1,401	222	4	2	0	31	154	1,814
Hendry	12,726	234	19	963	10	4	1,324	15,280
Indian River	9,083	3,213	1,128	318	12	281	7,174	21,209
Martin	3,510	3,713	909	1,304	61	282	10,037	19,816
Miami-Dade	12,654	22,603	2,511	11,976	6,359	437	165,862	222,402
Monroe	6,421	1,260	4,502	113	3	92	11,219	23,609
Okeechobee	2,870	670	44	905	88	9	1,640	6,226
Palm Beach	19,878	23,964	4,501	12,027	1,352	1,557	85,715	148,994
St. Lucie	5,976	3,231	163	1,819	116	123	10,590	22,018
Orlando	**57,222**	**84,458**	**9,488**	**37,020**	**9,438**	**2,306**	**289,509**	**489,440**
Brevard	1,278	4,255	224	564	140	282	28,199	34,941
Citrus	766	1,293	183	16	160	171	4,966	7,555
Flagler	563	1,257	12	13	17	57	3,533	5,452
Hardee	6,834	379	228	118	158	49	626	8,391
Highlands	10,257	1,093	765	58	42	129	3,622	15,965
Lake	4,405	6,096	1,613	3,523	182	91	12,899	28,809
Marion	6,307	4,432	982	1,901	667	315	13,734	28,339
Orange	4,327	22,045	400	8,414	1,231	371	118,865	155,653
Osceola	1,385	2,977	375	469	124	121	16,784	22,235

Region / County	Crop, Livestock, Forestry & Fisheries Production	Agricultural Inputs & Services	Mining	Food & Kindred Products Manufact.	Forest Products Manufact.	Nature-based Recreation	Food & Kindred Products Distribution	Total All Industries
				Full-time and Part-time Jobs				
Polk	15,910	24,615	3,019	19,780	4,156	212	25,545	93,237
Seminole	662	9,438	115	678	2,291	108	27,327	40,619
Sumter	917	678	786	384	176	191	4,919	8,050
Volusia	3,610	5,900	786	1,101	97	210	28,489	40,194
Panama City	**5,095**	**2,395**	**2,638**	**498**	**4,451**	**299**	**18,725**	**34,103**
Bay	717	1,795	2,450	161	3,629	128	14,960	23,840
Calhoun	648	73	18	1	87	66	397	1,291
Gulf	146	168	0	0	16	6	523	859
Holmes	1,156	135	7	28	15	2	437	1,781
Jackson	1,529	85	137	85	696	17	1,733	4,283
Washington	898	138	27	223	8	81	674	2,049
Pensacola	**3,827**	**5,608**	**4,498**	**912**	**3,938**	**390**	**45,786**	**64,959**
Escambia	1,163	655	1,317	338	3,851	252	18,455	26,031
Okaloosa	1,015	2,298	2,483	40	2	103	15,857	21,798
Santa Rosa	817	1,494	572	191	34	23	5,891	9,022
Walton	831	1,162	127	344	50	12	5,583	8,108
Sarasota-Bradenton	**30,987**	**39,880**	**5,092**	**9,907**	**1,713**	**2,535**	**108,933**	**199,048**
Charlotte	1,517	2,675	1,164	17	9	147	7,757	13,286
Collier	9,080	6,805	1,825	217	156	945	22,505	41,534
De Soto	6,390	293	0	838	14	30	693	8,259
Lee	3,457	11,874	972	1,412	702	797	36,835	56,049
Manatee	9,751	6,763	199	7,303	714	225	17,481	42,438
Sarasota	792	11,470	932	121	117	390	23,661	37,482
Tallahassee	**6,976**	**7,598**	**682**	**1,145**	**6,439**	**235**	**25,452**	**48,526**
Franklin	86	281	7	117	52	7	936	1,486
Gadsden	1,757	301	450	56	485	23	1,111	4,182
Hamilton	534	2,595	0	1	3	9	258	3,400
Jefferson	931	149	5	8	18	6	372	1,489
Leon	812	3,524	85	246	105	94	20,591	25,457
Liberty	165	38	2	17	312	5	151	690
Madison	1,448	84	0	531	133	82	497	2,774
Taylor	980	142	114	153	5,327	4	710	7,430
Wakulla	262	484	18	16	5	7	826	1,618
Tampa-St. Petersburg	**19,495**	**45,197**	**15,521**	**22,869**	**5,540**	**923**	**163,865**	**273,410**
Hernando	817	1,689	409	272	25	80	7,511	10,804
Hillsborough	15,732	26,661	1,371	19,165	4,184	422	80,624	148,158
Pasco	2,338	5,248	185	1,358	30	141	17,168	26,468
Pinellas	608	11,600	13,555	2,075	1,301	280	58,562	87,981
Total All Regions	**220,839**	**292,142**	**56,966**	**137,339**	**62,929**	**11,296**	**1,183,709**	**1,965,221**

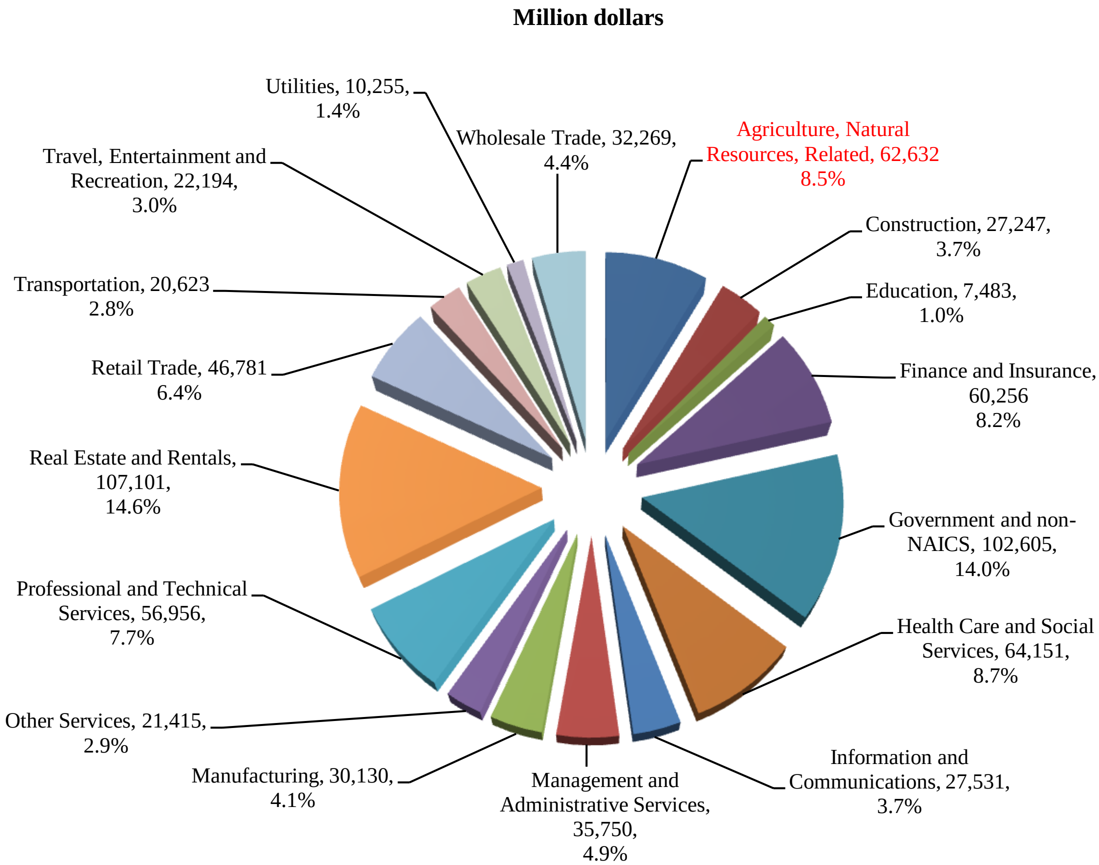
Impact estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Share of Florida Gross Domestic Product and Employment

The relative importance of agriculture, natural resources, and related food industries in Florida can be gauged by their share of overall economic activity in the state. The GDP of Florida in 2011, equivalent to the sum of direct value added for all industries, was $735.38 billion, and total employment in the state was 9.747 million jobs. The direct value added of agriculture, natural resources, and related food industries in Florida was $62.63 billion in 2011, which represented 8.5 percent of the GDP (Figure 10), while the total value-added impact, including regional multiplier effects, was $104.30 billion, representing 14.2 percent of state GDP. Direct employment by agriculture, natural resources and related food industries was 1.41 million full-time and part-time jobs, representing 14.4 percent of all jobs in the state in 2011 (Figure 11), while total employment impacts of 1.97 million full-time and part-time jobs represented 20.2 percent of all jobs in the state. Excluding the *Food and Kindred Products Distribution* industry group, agriculture, natural resources and related food industries represented 6.52 percent of total contributions to GDP and 8.02 percent of total state employment.

The share of total employment and value-added contributions by agriculture, natural resources, and related food industries in each Florida County is mapped in Figures 12 and 13, respectively, with greater relative contributions indicated by darker shading.

Figure 10. Direct value-added by major industry groups as a share of Florida GDP in 2011



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

Figure 11. Direct employment by major industry groups in Florida in 2011

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

Figure 12. Map of share of total employment contributions by agriculture, natural resources, and related food industries in Florida counties in 2011

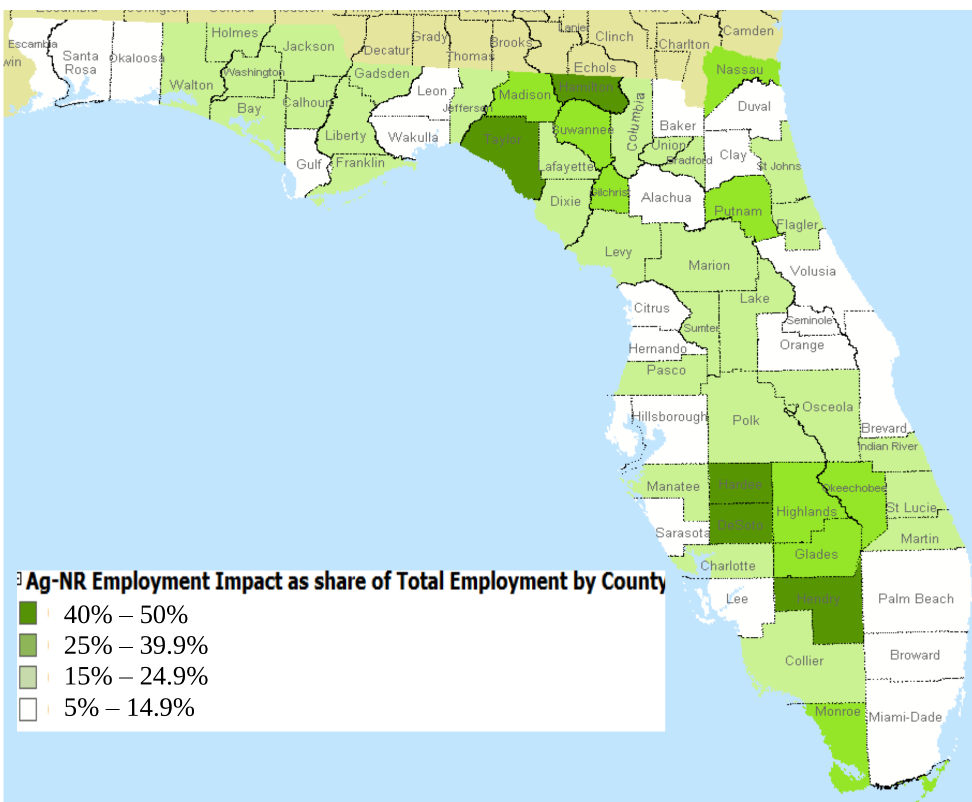
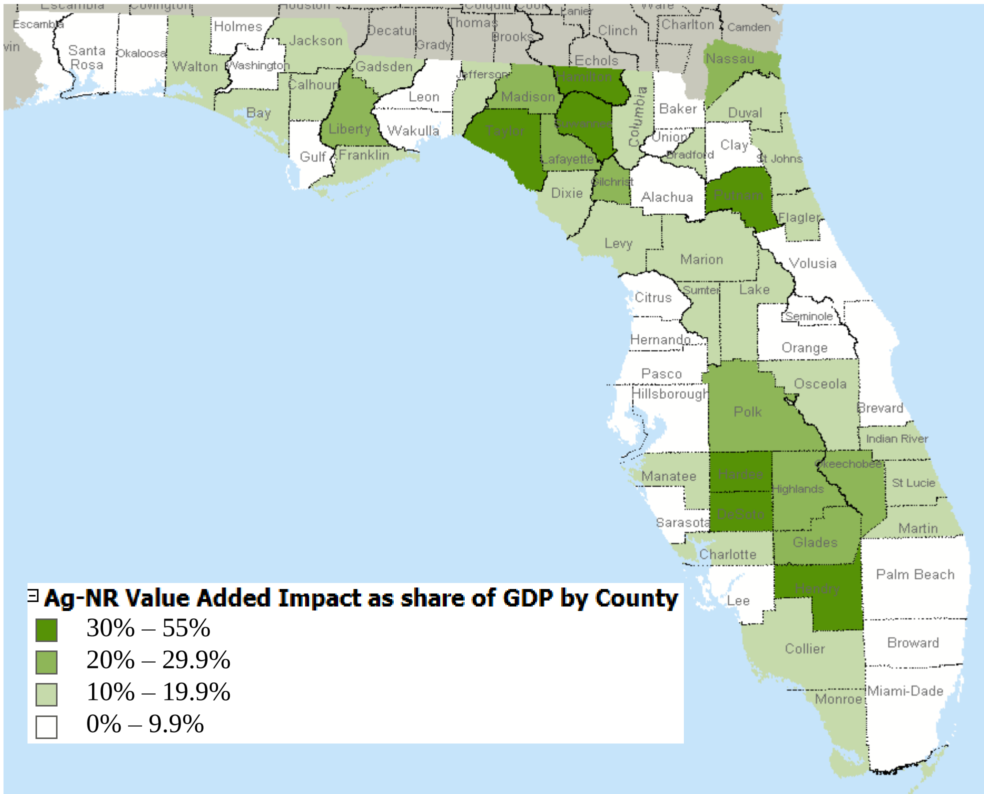


Figure 13. Map of share of contributions to GDP by agriculture, natural resources, and related food industries in Florida counties in 2011



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

Trends in Economic Contributions over Time

In addition to the status of economic contributions made by agriculture, natural resources, and related food industries to the state in 2011, it is important to understand how these values have changed over time. Trends in the economic contributions between 2001 and 2011 are shown in Figures 14 to 18, with all monetary values adjusted for inflation and expressed in constant 2011 U.S. dollars. Note that these trends may reflect changes in commodity prices, the structure of Florida's economy, and the business cycle of the national and global economy.

Direct employment in Florida's agriculture, natural resources and related food industries grew from 1.28 million jobs in 2001 to 1.40 million jobs in 2008, then declined to 1.33 million jobs in 2009, as a result of the global recession, but recovered to 1.41 million in 2011. Annual job growth in agriculture and related industries averaged 0.8 percent over the 11-year period. Total employment impacts increased to 1.97 million jobs in 2011, reflecting an increase in exports to domestic and world markets, and representing a 1.2 percent average annual growth during 2001–2011 based on the linear regression trend (Figure 14).

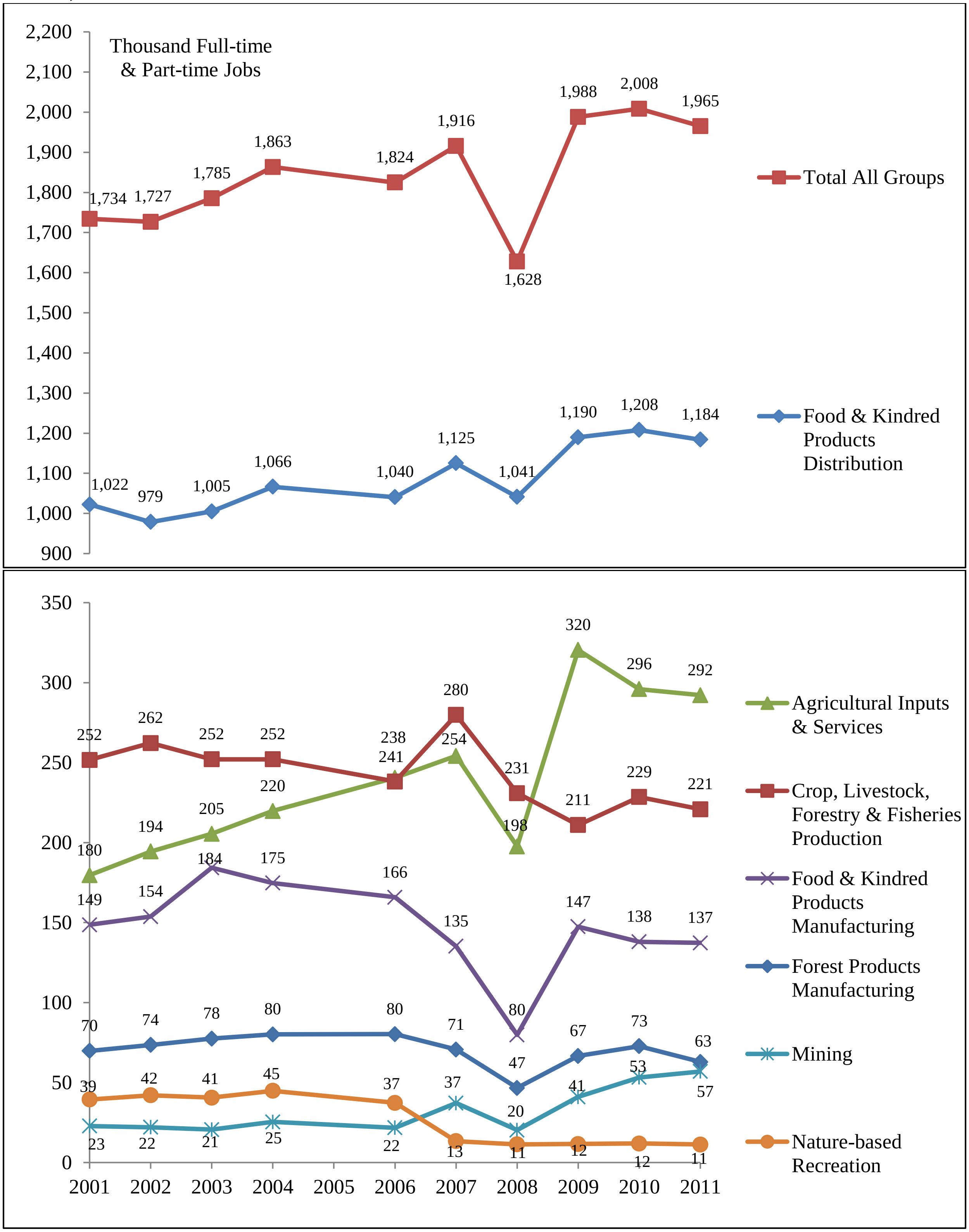
Total value-added impacts grew from $82.29 billion in 2001 to $104.30 billion in 2011, representing a 2.5 percent average annual growth rate in inflation-adjusted terms (Figure 15). Among industry groups, average annual growth in value-added impacts during 2001–2011 was highest for *Mining* (8.3%), followed by *Agricultural Inputs and Services* (5.4%) and *Food and Kindred Products Distribution* (4.1%), while groups with negative growth during this period included *Forest Products Manufacturing* (–0.3%); *Crop, Livestock, Fisheries, and Forestry Production* (–0.3%); *Food and Kindred Product Manufacturing* (–0.9%); and *Nature-based recreation* (–15.2%).

Trends in employment and value-added impacts among Florida's food and fiber commodity groups between 2001 and 2011 are shown in Figures 16 to 17. The *Environmental Horticulture* commodity group showed the highest increase in employment impacts (49%), followed by *Fruit and Vegetable Farming and Processing* (7%). Commodity groups that suffered a decline in employment impacts included *Livestock Farming and Animal Products Manufacturing* (–41%); *Grain and Oilseed Farming and Processing* (–40%); *Fishing and Seafood Products* (–26%); and *Sugarcane Farming and Refined Sugar and Confections* (–16%) (Figure16). The *Environmental Horticulture* commodity group also had the highest growth in value-added impacts (38%), followed by *Agricultural Inputs and Services* (16%); *Grain and Oilseed Farming and Processing* (16%); and *Fruit and Vegetable Farming and Processing* (9%) (Figure 17). The *Fishing and Seafood Products* commodity group suffered the greatest decline in value-added impacts (–42%), followed by *Sugarcane Farming and Refined Sugar and Confections* (–40%) and *Livestock Farming and Animal Products Manufacturing* (–24%).

Individual industry sectors with average yearly growth rates in value-added impacts greater than 20 percent during 2001–2011 included *Soybean and other oilseed processing* (29%); *Wet corn milling* (29%); *Tortilla manufacturing* (27%); *Breakfast cereal manufacturing* (27%); *Tree nut farming* (24%); and *Extraction of oil and natural gas* (20%).

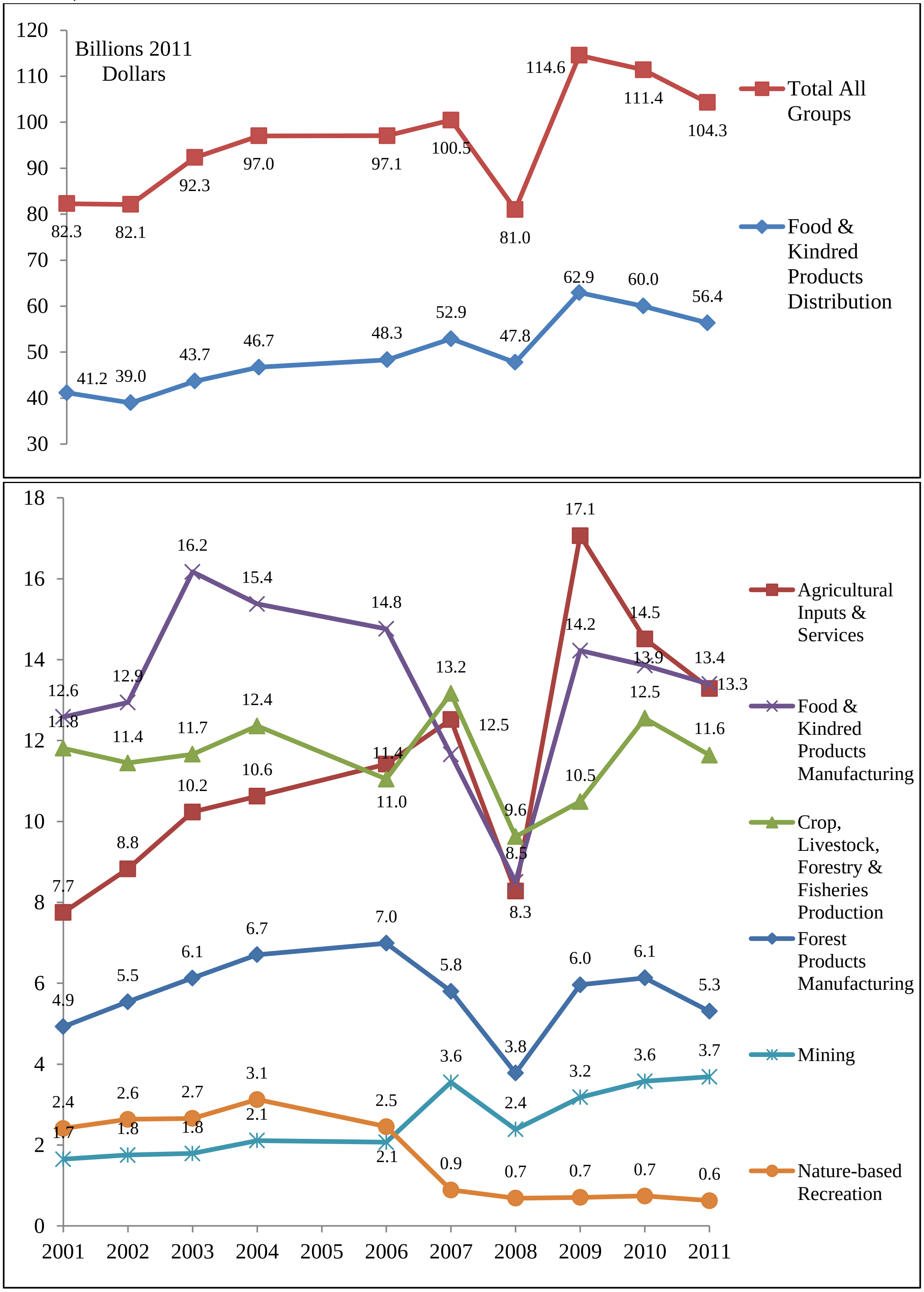
Across all industry groups in Florida, *Agriculture, Natural Resources, and Related Food Industries* was among the major sectors that experienced positive growth in direct value-added contributions during 2001–2011. Among seventeen major industry groups, those with the highest average annual growth in direct value added were *Education* (6.0%); *Government* (3.8%); *Health Care and Social Services* (3.4%); *Professional and Technical Services* (3.1%); *Travel, Entertainment, and Recreation* (3.0%); *Real Estate and Rentals* (2.6%); *Finance and Insurance* (2.5 %); and *Agriculture, Natural Resources, and Related Industries* (1.8%).

Figure 14. Trend in employment contributions by agriculture, natural resources, and related food industries in Florida, 2001 to 2011



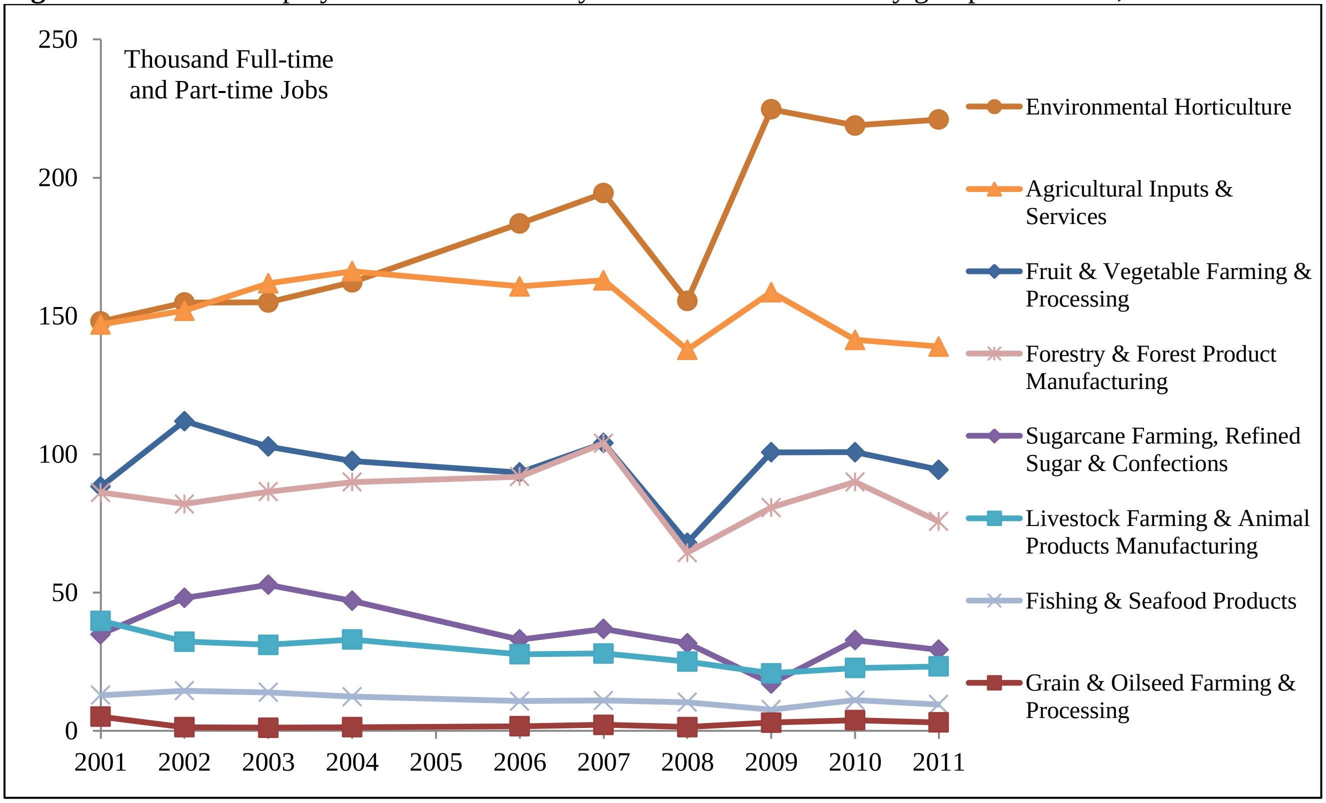
Data not available for 2005. Estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Figure 15. Trend in value-added contributions by agriculture, natural resources, and related food industries in Florida, 2001 to 2011



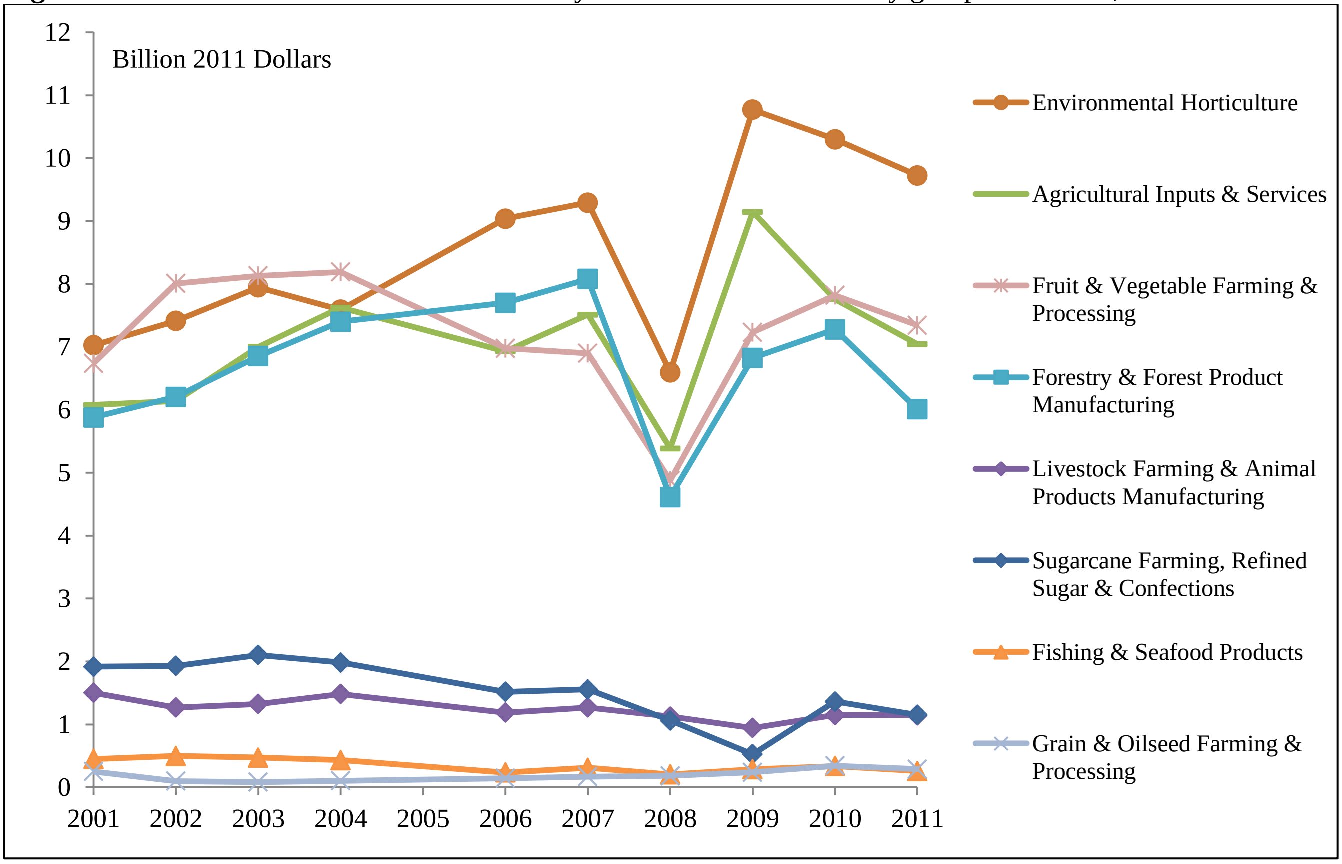
Data not available for 2005. Values expressed in 2011 dollars. Estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc).

Figure 16. Trend in employment contributions by food and fiber commodity groups in Florida, 2001 to 2011



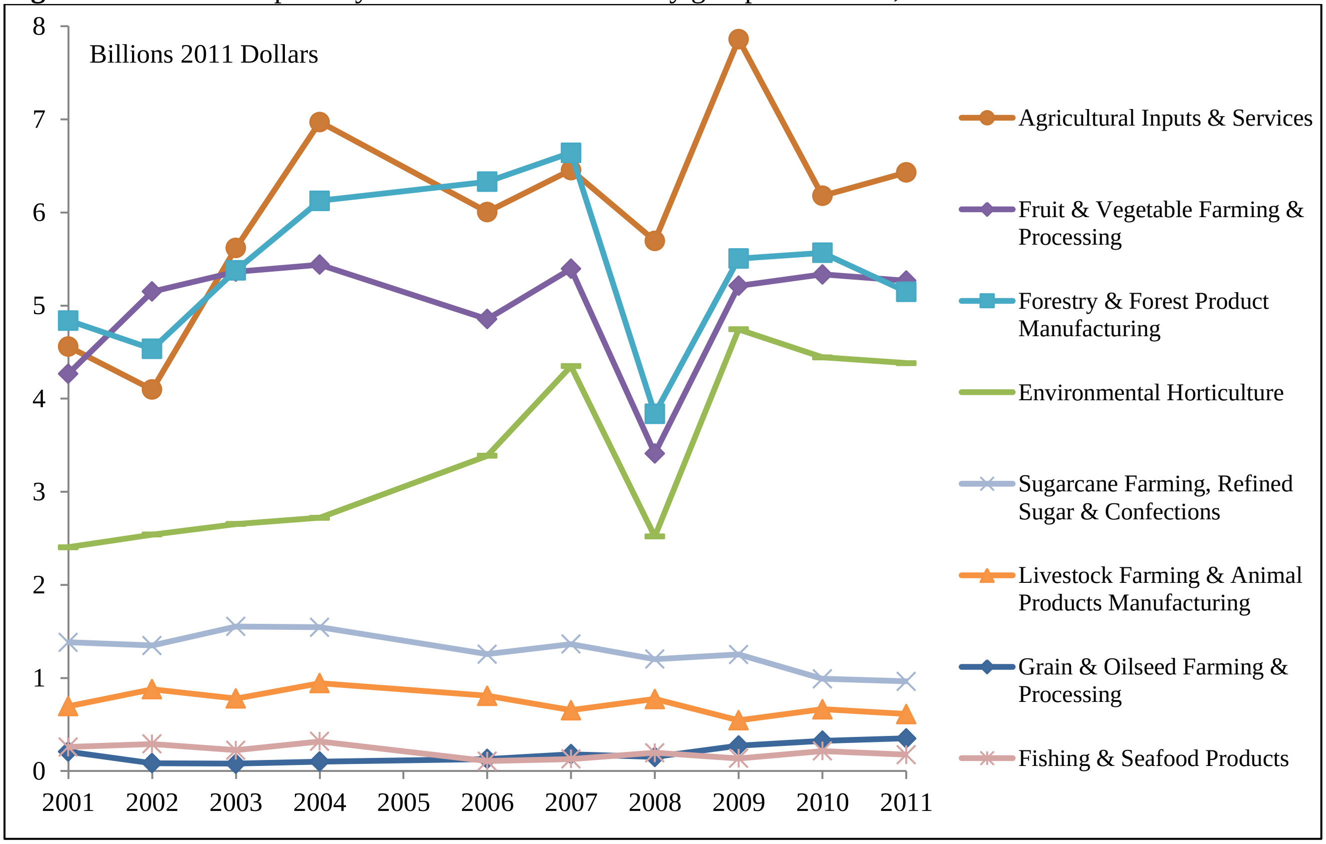
Data not available for 2005. Estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Figure 17. Trend in value-added contributions by food and fiber commodity groups in Florida, 2001 to 2011



Data not available for 2005. Estimates include regional multiplier effects. Source: *IMPLAN* data for Florida (MIG, Inc.).

Figure 18. Trend in exports by food and fiber commodity groups in Florida, 2001 to 2011



Note data not available for 2005. Estimates include regional multiplier effects.
Source: *IMPLAN* data for Florida (MIG, Inc.).

Conclusions

Agriculture and natural resource industries in Florida 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 Florida's economy in 2011, with direct employment accounting for about 14.4 percent of total state employment and direct value added representing 8.5 percent of state GDP. *Food and Kindred Products Distribution* was by far the largest segment of the industry group, 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, but are relatively more important as a share of total economic activity in rural counties. The agriculture, natural resources, and related industries have grown substantially since 2001, interrupted in 2008 by the global recession, but continuing recovery in 2011, with total regional economic impacts increased dramatically due to increased exports. Growth in economic activity of agriculture, natural resources, and related food industries during the past ten years was higher than many other major industry groups, thus contributing towards the stability and sustainability of the Florida economy.

Literature and Information Sources Cited

Hodges, A.W., M. Rahmani, and Thomas Stevens. 2012. Economic contributions of agricultural, natural resource, and related industries in Florida for 2010. Electronic Data Information Source (EDIS) FE906. University of Florida, Gainesville, FL. http://edis.ifas.ufl.edu/FE906.

Hodges, A.W., M. Rahmani and Thomas Stevens. 2011. Economic contributions of Florida's agricultural, natural resource, food and kindred product manufacturing and distribution, and service industries in 2009. Electronic Data Information Source (EDIS) FE829. University of Florida, Gainesville, FL. http://edis.ifas.ufl.edu/FE897.

Hodges, A.W. and M. Rahmani. 2010. Economic contributions of Florida's agricultural, natural resource, food and kindred product manufacturing and distribution, and service industries in 2008. Electronic Data Information Source (EDIS) FE829. University of Florida, Gainesville, FL. http://edis.ifas.ufl.edu/FE829.

Hodges, A.W. and M. Rahmani, 2009. Economic contributions of Florida's agricultural, natural resource, food and kindred product manufacturing and distribution, and service industries in 2007. Electronic Data Information Source (EDIS) FE800. University of Florida, Gainesville, FL. http://edis.ifas.ufl.edu/FE800.

Hodges, A.W., M. Rahmani, and W.D. Mulkey, 2008. Economic contributions of agricultural, food manufacturing, and natural resource industries in Florida in 2006. Electronic Data Information Source (EDIS) FE702. University of Florida, Gainesville, FL. http://edis.ifas.ufl.edu/FE702.

Johnson, K. and J. Kort. 2004. Redefinition of the BEA economic areas. *Survey of Current Business*. United States Department of Commerce, Bureau of Economic Analysis, Washington, D.C. (November). http://www.bea.gov/scb/pdf/2004/11November/1104Econ-Areas.pdf.

Minnesota IMPLAN Group, Inc. (MIG). *IMPLAN Professional* software for impact analysis and social accounting (version 3.0) and Florida state and county data for 2001-09. Stillwater, MN. http://www.implan.com.

Miller, R.E. and P.D. Blair. 2009. *Input-Output Analysis: Foundations and Extensions*, Second Edition. Cambridge, UK: Cambridge University Press.

United States Department of Commerce, Bureau of Economic Analysis (USDOC/BEA). Various Years. *Gross Domestic Product Implicit Price Deflator,* 1970-2010 (quarterly), USDOC/BEA, Washington, D.C. http://research.stlouisfed.org/fred/data/gdp/gdpdef.

Watson, P., J. Wilson, D. Thilmany, and S. Winter. 2007. Determining economic contributions and impacts: what is the difference and why do we care? *Journal of Regional Analysis and Policy* 37(2):140-146. http://www.jrap-journal.org/pastvolumes/2000/v37/F37-2-6.pdf.