

Economic Contributions of Agriculture, Natural Resources, and Food Industries in Florida in 2013¹

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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 the economic contributions of these industries to ensure informed public policy. The economic contributions of these industries were evaluated for calendar year 2013 to update previous reports and provide current information on economic trends.

This analysis was conducted using the *Implan* regional economic modeling system and associated state and county databases (*IMPLAN* Group LLC) to estimate economic multipliers for over 500 different industry sectors. Multipliers capture the additional (indirect and induced) economic activity generated by re-spending of income or sales revenues in a regional economy. A collection of 121 industry sectors were included in the analysis to represent the broad array of activities encompassed by agricultural and natural-resource commodity production, manufacturing, distribution, and supporting services in Florida. Economic contributions can be measured in terms of employment, industry output, value added, exports, labor income, other property income, and business taxes. A glossary of economic terms used in this report is provided following this summary.

The economic contributions of Florida agriculture, natural resources, and food industries for 2013 are summarized in Table 1, and include

- Industry output or sales revenues of \$148.54 billion
- Foreign and domestic exports of \$56.29 billion
- 1,523,389 full-time and part-time jobs are directly connected to agriculture natural resource and food industries, representing 14.3 percent of all jobs in the state
- An additional 633,942 jobs are indirectly connected to these industries for a total employment impact of 2,157,331 jobs, representing 20.2 percent of total state employment
- Total value added impacts (including multiplier effects) of \$123.24 billion, representing 15.4 percent of Gross State Product
- Total labor income impacts of \$76.49 billion, which includes employee wages, fringe benefits, and business proprietor income
- Total property income impacts of \$34.24 billion, representing rents, dividends, interest, royalties, etc.
- Taxes on production and imports paid to local, state, and federal governments totaling \$12.51 billion

Across the various industry groups, total employment and value added impacts were largest for the Food and Kindred

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Products Distribution industry group (1.37 million jobs; \$69.15 billion), which includes food service establishments (restaurants and bars), and retail food stores, followed by Agricultural Inputs and Services (246,368 jobs; \$14.06 billion); Crop, Livestock, Forestry, and Fisheries Production (245,934 jobs; \$14.73 billion); Food and Kindred Product Manufacturing (146,440 jobs; \$13.51 billion); Forest Product Manufacturing (70,006 jobs; \$6.29 billion); Mining (45,406 jobs; \$3.77 billion); and Nature-Based Recreation (35,515 jobs; \$1.83 billion). Excluding the Food and Kindred Products Distribution industry group, total value added impacts represented 4.93 percent of Gross State Product and employment was 5.47 percent of total state employment.

Information on economic contributions was also regrouped and evaluated for seven agricultural commodity groups 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 (164,894 jobs; \$8.42 billion), followed by Fruit and Vegetable Farming and Processing (94,478 jobs; \$6.84 billion); Forestry and Forest Products (80,665 jobs; \$7.06 billion); Livestock, Dairy Farming, and Animal Products Manufacturing (27,413 jobs; \$1.75 billion); Sugarcane Farming and Refined Sugar Manufacturing (22,648 jobs; \$2.06 billion); Fishing and Seafood Products (11,965 jobs; \$565 million); and Grain and Oilseed Farming and Processing (3,816 jobs; \$314 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, and 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 (Table 1). The eight largest counties in terms of total employment and value added impacts were Miami-Dade (265,354 jobs; \$16.95 billion), Orange (181,371 jobs; \$10.36 billion), Hillsborough (176,296 jobs; \$11.92 billion), Palm Beach (168,767 jobs; \$10.39 billion), Broward (164,243 jobs; \$8.93 billion), Polk (117,310 jobs; \$8.51 billion), Duval (112,032 jobs; \$7.83 billion), and Pinellas (82,885 jobs; \$3.96 billion). Additional detailed information on economic contributions in individual Florida counties is available in the Appendix of the full report.

Direct employment in the agriculture, natural resources, and related food industries in Florida grew from 1.272 million jobs in 2001 to a peak of 1.369 million jobs in 2008, then declined during the Great Recession in 2009/10, and recovered to 1.52 million jobs in 2013, which was 19.7 percent higher than 2001, representing average annual growth of 1.64 percent. Overall growth in the industry during this period reflected an increase in exports of Florida products to domestic and world markets. Average annual growth in employment impacts during 2001–2013 was highest for Mining (7.0 %), followed by Agricultural Inputs and Services (4.3 %), and Food and Kindred Products Distribution (1.6%), while industry groups with negative growth in average annual employment impacts were Crop, Livestock, Forestry, and Fisheries Production (–1.6 %); Food Products Manufacturing (–4.1%); Food and Kindred Products Manufacturing (–0.6 %), and Nature-Based Recreation (–10.9%).

The full report is available online at <http://fred.ifas.ufl.edu/pdf/FE969-FullReport.pdf>

Glossary of Economic Impact Terms

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 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 goods and services to customers visiting from other regions.

Final Demand represents sales to final consumers, including households, 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 equals the total value added 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, accounts for commodity production and consumption for 536 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 net 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.

Taxes on Production and Imports 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) is a representation of the transactions between industry sectors within a regional economy that captures what each sector purchases from every other sector to produce its output of goods or services. Using such a model, flows of economic activity associated with any change in spending or employment may be traced backwards through the supply chain.

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 or initial 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.

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 or Regional Economy is the geographic area and the economic activity it contains for which impacts are estimated. It may consist of an individual county, an aggregation of several counties, a state, or aggregation of states. These aggregations are sometimes 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 an industry to regional economy because it avoids double counting of intermediate sales.

Table 1. Summary of economic contributions of agriculture, natural resources, and food industries in Florida in 2013, by industry group and Florida region

	Direct Employment (Jobs)	Direct Industry Output (M\$)	Foreign and Domestic Exports (M\$)	Industry Output Impacts (M\$)	Employment Impacts (Jobs)	Value Added Impacts (M\$)	Labor Income Impacts (M\$)	Other Property Income Impacts (M\$)	Business Tax Impacts (M\$)
Industry Group									
Crop, Livestock, Forestry & Fisheries Production	150,764	11,572	7,437	23,268	245,934	14,731	8,561	5,386	784
Agricultural Inputs & Services	151,556	16,839	10,412	30,337	246,368	14,058	9,131	4,101	826
Food & Kindred Products Manufacturing	55,467	25,561	10,524	38,510	146,440	13,513	7,155	5,219	1,140
Forest Products Manufacturing	19,961	8,103	5,682	15,031	70,006	6,294	3,698	2,157	438
Food & Kindred Products Distribution	1,102,080	80,837	18,921	114,581	1,367,663	69,048	44,763	15,332	8,953
Mining	19,625	4,052	2,487	7,414	45,406	3,766	1,915	1,584	267
Nature-based Recreation	23,936	1,579	829	3,047	35,515	1,826	1,263	459	104
Total All Industries	1,523,389	148,544	56,291	232,188	2,157,331	123,236	76,486	34,239	12,512
Florida Region									
Miami-Fort Lauderdale	492,399	47,269	20,185	74,867	704,885	42,312	26,831	11,222	4,349
Orlando	380,541	37,158	18,156	59,664	551,414	30,520	18,756	8,658	3,078
Tampa-St. Petersburg	209,941	21,754	10,065	33,902	298,795	17,516	11,119	4,639	1,783
Sarasota-Bradenton	168,114	12,690	4,770	19,055	218,030	10,859	7,168	2,638	1,040
Jacksonville	112,840	14,412	7,893	22,014	168,302	11,011	6,188	3,605	1,173
Pensacola	55,459	4,119	1,742	6,154	71,326	3,287	2,065	852	368
Gainesville	41,749	4,207	2,284	5,887	55,582	2,910	1,614	1,026	262
Tallahassee	37,191	4,789	3,024	7,241	53,736	3,085	1,732	1,062	277
Panama City	25,155	2,145	1,137	3,403	35,262	1,737	1,013	536	182
Employment represents full-time and part-time jobs. Monetary values are given in millions dollars. Total impact estimates include regional multiplier effects. Source: <i>IMPLAN</i> data for Florida (<i>IMPLAN</i> Group LLC).									