

Contribution of Agribusiness to the Idaho Economy, 2013

Garth Taylor, Ben Eborn, and Philip Watson

Executive summary

In 2013, the total output (sales of goods and services) of the Idaho economy was \$133 billion, Idaho's gross state product (GSP) was \$62 billion, and employment totaled 911,400 jobs. Idaho's total economic pie can be sliced two ways: (1) using a gross (accounting) measure or (2) using a base (export-driven) measure. Using the gross measure for 2013, Idaho agribusiness sold close to \$20 billion of goods and services, generated \$5.8 billion in GSP, and created 58,400 Idaho jobs. Using base analysis, which takes into account economic activity generated in other sectors by agribusiness exports, agribusiness contributed over \$27 billion (20%) of total sales, over \$10 billion (16%) of the state's GSP, and over 126,000 (14%) Idaho jobs. Agribusiness is Idaho's largest base industry as ranked by base sales, the third largest as ranked by base value added, and the fourth largest as ranked by base jobs.

What is agribusiness?

Agribusiness is a vertically integrated industrial complex engaged in the production and processing of agricultural products. The production and marketing channels of agribusiness extend from farm suppliers to farmers and ranchers, then to food processors and to food retailers, and finally to domestic consumers or international markets. The farm is the intermediate link, with backward links to farm suppliers and service providers (of fertilizers, seed, farm equipment, etc.) and forward links to agricultural processors (French fries, cheese, ethanol, etc.). Agricultural processors are linked to retailers and restaurants, but these businesses are excluded from our measure of agribusiness's contribution to Idaho's economy. In our analysis, "agribusiness" comprises crop farming, livestock farming, and agricultural processing.

Following similar criteria, all of Idaho's industries were aggregated into 12 sectors (table 1).

Table 1. Sectors of the Idaho economy.

Sector or Industry	Definition
Crop farming	Farms growing crops for food, fiber, and fuel
Livestock farming	Farms raising animals or animal products
Agricultural processing	Manufacturing of food, fiber, livestock feed, and ethanol
Forest products	Forestry, logging, wood, and paper products
Mining products	Minerals, petroleum, extraction, and processing
Transportation, construction, and utilities	Utilities; construction; and air, railroad, and motor transportation
Other manufacturing	All durable and non-durable manufacturing except for high-tech
Hi-Tech manufacturing	Manufacturing of computers and electronics, computer peripherals, and communications equipment
Trade	Wholesale and retail trade
Services	All services
Government and misc.	Government services (e.g., postal service); federal, state, and local government jobs and payroll; federal government transfers; state and local government spending
Households	Non-labor income (Social Security, dividends, etc.)

Gross and base: Two ways to measure economic contribution

The contributions of agribusiness and other sectors to Idaho's economy were measured in terms of output (sales of goods and services), employment (jobs), and value added. Total value added is gross state product (GSP). The contribution of agribusiness or of any other sector to the Idaho economy can be measured in two ways, gross or base. While the gross and base measures of Idaho's total economic activity are equal, they differ in how they slice Idaho's economic pie.

The gross measure, or accounting measure, simply counts the economic activity (sales, jobs, and value added) of an industry. Measuring the gross is an accounting task: tallying the number of people employed, the total sales, or the total value added created by each industry. Idaho's GSP (gross state product) and employment figures are regularly published gross measures.

The base measure credits to an exporting industry the sales, jobs, or value added of its backward-linked businesses. Industries whose gross measures exceed the base measures are non-base, or supporting, industries. Conversely, industries whose base measures exceed the gross measures create the export base of the economy.

For example, suppose a rancher buys a tire. The gross measure attributes the tire sale (and associated job and value added) to the non-base tire store. The base analysis credits the tire sale to the beef industry because the base industry rancher exported cattle to a neighboring state, bringing new dollars into the Idaho economy with which to buy the tire. Had the rancher sold the cattle to an Idaho processor, that processor would be credited as the base industry.

Non-base industries primarily sell to customers within Idaho, and base industries sell to customers outside Idaho, thus bringing new dollars into Idaho. The output of any base industry is the sum of its exports (the direct contribution to output) plus sales of the nonbase businesses that support the base industry (the indirect contribution). Non-base and base businesses are both essential to a thriving economy, but the base measure is propelled by exports and could be more accurately labeled as the “contribution of exports.”

The base measure attributes the source of economic growth to exports; thus, the base analysis is useful for developing policies that increase sales, jobs, and income through exports. For example, Governor Otter has a goal of increasing Idaho’s GSP to \$60 billion. The gross measure monitors the goal, and the base measure provides a policy prescription: export promotion of Idaho’s base industries. Exports, however, are but one source of regional economic growth; the others are substituting local production for imports, improving productivity by technological innovation, and attracting capital investment.

Households and government are not business sectors, but they indirectly contribute to the state’s jobs, GSP, and sales. Households, government infrastructure, and transfers payments make no direct contribution to sales, employment, or value added; however, they bring new monies into the state that are then used to create economic activity in other sectors. Households receive income from Social Security, dividends, etc., that does not require purchase of inputs (fertilizer, seed, labor, etc.) to produce. However, this household income ripples throughout the economy to generate sales, jobs, and value added. Similarly, government-financed infrastructure (highways, bridges, etc.) and government programs receive federal government assistance that does not require purchases of inputs. These monies also ripple throughout the economy to indirectly generate sales, jobs, and value added.

Trends in Idaho’s agribusiness economy

Gross state product

According to the U.S. Bureau of Economic Analysis, Idaho real GSP (2009 dollars) increased from \$35.6 billion in 1997 to \$56.1 billion in 2013, or 58% (figure 1). Over the same time period, real GSP generated by farming increased 109%, from \$1.1 billion to \$2.3 billion (figure 2). Real GSP generated by agricultural processing increased 23%, from \$1.3 billion to \$1.6 billion (figure 3).

In 1997, real GSP attributable to farming and to agricultural processing were almost equal, at \$1.1 billion

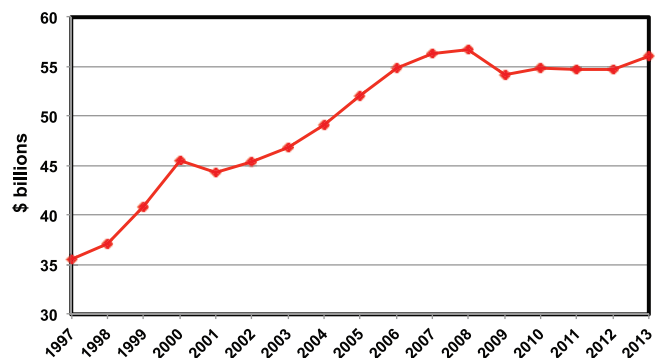


Figure 1. Idaho total real GSP (2009 dollars), 1997–2013.

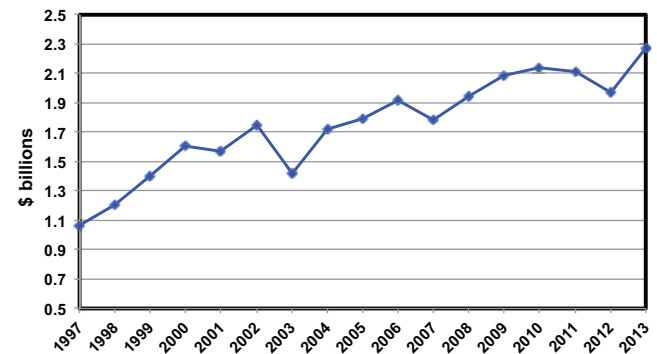


Figure 2. Idaho real GSP from farming (2009 dollars), 1997–2013.

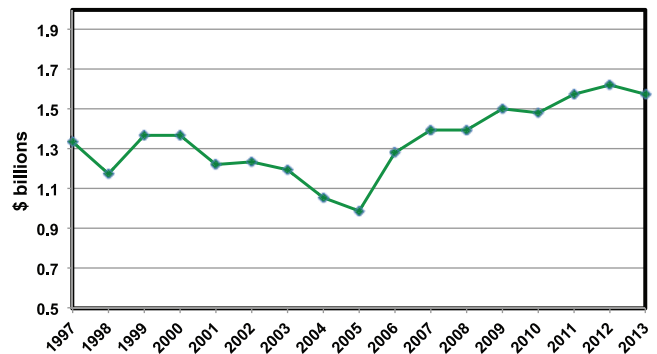


Figure 3. Idaho real GSP from agricultural processing (2009 dollars), 1997–2013.

and \$1.3 billion respectively, for a combined total 6.8% of Idaho's economy. Thus, growth in farming GSP far outstripped growth in agricultural processing GSP and in Idaho's total GSP. By 2013 farming accounted for 4.1% of Idaho's real GSP, while agricultural processing remained at 2.8%. Real GSP generated in the agricultural processing sector in 2013 was about 69% of the GSP generated by farming.

From 1997 to 2013, the compound growth rates in real GSP for the total state, farming, and agricultural processing were 2.9%, 4.8%, and 1%, respectively. Thus, growth in real farming GSP has been over four times the growth in agricultural processing GSP and agricultural processing has not kept pace with the growth in farming

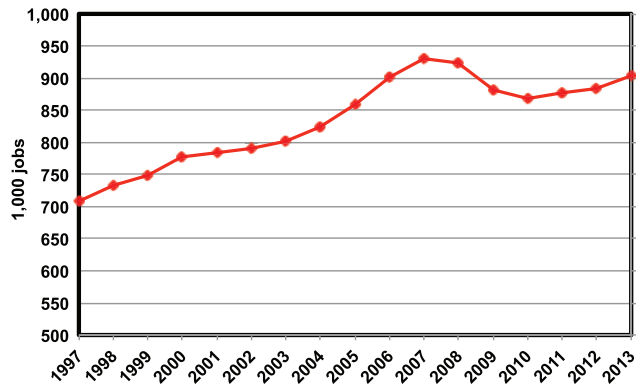


Figure 4. Idaho total jobs, 1997–2013.

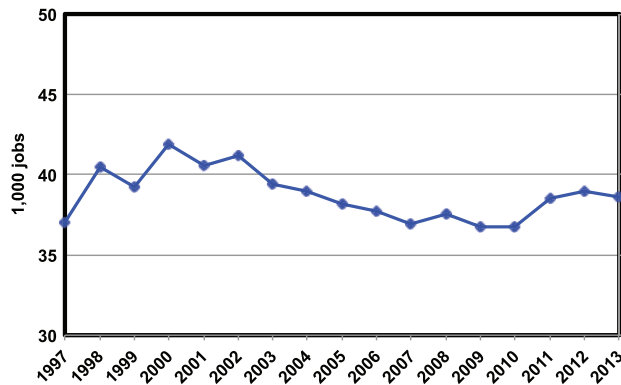


Figure 5. Idaho jobs in farming, 1997–2013.

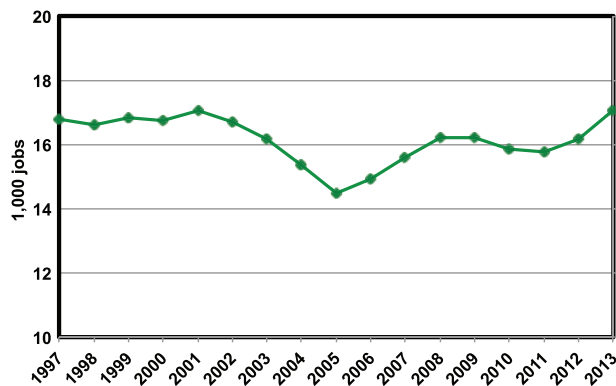


Figure 6. Idaho jobs in agricultural processing, 1997–2013.

GSP. In addition, farming GSP has grown close to 70% faster than GSP in Idaho's economy as a whole.

Farming and agricultural processing have been relatively recession proof. In 2008 and 2009, the depth of recession, farming GSP continued to grow and agricultural processing GSP dipped only slightly.

In 2013, real farm GSP set a record high of \$2.3 billion. The record for agricultural processing GSP was set in 2012 at \$1.6 billion.

Employment

In the 16 years from 1997 through 2013, Idaho employment increased nearly 28%, from 708,400 jobs in 1997 to 903,400 jobs in 2013 (figure 4). Over the same 17 years, farming jobs increased by only 4% and agricultural processing jobs increased by 1% (figures 5 and 6). As a result, agribusiness employment as a percentage of total Idaho employment has dropped. In 2013, employment in agricultural processing was 44% that in farming.

The 2008 to 2009 recession has been labeled a “jobs recession.” Idaho total jobs peaked in 2007 and have yet to recover to pre-recession levels. The recession did not take a bite out of agribusiness employment, however. Farm employment has averaged around 38,700 jobs and agricultural processing has averaged 16,200 jobs over the 17 years from 1997 through 2013. Both farming and agricultural processing jobs have been steady. The high for farming jobs was 41,900 in 2000, and the low was 36,700 in 2010. The high for agricultural processing was 17,100 in 2001, and the low was 14,500 in 2005.

Contribution of agribusiness

Output (sales) contribution of agribusiness, 2013

Idaho's 2013 farm gate cash receipts were \$9.0 billion (USDA NASS), and Idaho ranked 19th in the nation in cash receipts of agricultural products. Idaho ranks first nationally in potato production, second in barley, and third in alfalfa and sugar beets. Idaho's dairy industry ranks third in the nation, surpassed only by California and Wisconsin.

What gives Idaho agribusiness such a large contribution to the economy is not its sheer size, but rather the magnitude of its forward linkages. Idaho's principal agricultural products—potatoes and milk—create additional economic benefits in the processing industries. Including processing sales, the total gross output of agribusiness in Idaho in 2013 was over \$19.9 billion. The gross output of agribusiness was 15% of total output, second behind services (table 2).

The base contribution of agribusiness to output was \$27.2 billion, over 20% of the total output of Idaho's

Table 2. Output, value added, and jobs in Idaho, 2013.

SECTOR	Output (sales) (\$ billions)				Value added (GSP) (\$ billions)				Jobs (1,000)			
	Gross total	Base total	Direct base	Indirect base	Gross total	Base total	Direct base	Indirect base	Gross total	Base total	Direct base	Indirect base
Crop farming	\$4.1	\$4.9	\$2.8	\$2.1	\$1.9	\$2.5	\$1.4	\$1.1	21.8	33.7	15.0	18.7
Livestock farming	\$4.7	\$5.1	\$2.7	\$2.4	\$2.1	\$2.3	\$1.2	\$1.1	18.1	26.0	10.0	15.9
Ag processing	\$11.1	\$17.2	\$8.9	\$8.3	\$1.8	\$5.3	\$1.5	\$3.8	18.5	66.4	15.1	51.3
Forest products	\$2.8	\$3.9	\$2.2	\$1.7	\$0.8	\$1.4	\$0.6	\$0.8	10.8	19.9	7.5	12.4
Mining products	\$3.5	\$4.0	\$2.6	\$1.4	\$1.0	\$1.4	\$0.7	\$0.7	6.1	13.5	3.8	9.7
Other manufacturing	\$7.3	\$10.0	\$6.7	\$3.3	\$1.7	\$3.2	\$1.5	\$1.7	24.2	47.5	21.7	25.8
Services	\$51.3	\$17.3	\$9.6	\$7.7	\$28.6	\$9.0	\$4.9	\$4.1	469.4	152.0	79.8	72.2
Hi-tech manufacturing	\$10.4	\$14.3	\$9.1	\$5.2	\$3.2	\$5.3	\$2.8	\$2.5	11.2	46.9	9.9	37.0
Trade	\$13.3	\$4.8	\$2.8	\$2.0	\$7.9	\$2.7	\$1.7	\$1.1	129.1	44.0	26.7	17.4
Transportation, construction, and utilities	\$15.5	\$15.1	\$8.8	\$6.3	\$5.4	\$6.3	\$3.0	\$3.3	82.7	105.5	50.3	55.1
Government and misc.	\$8.8	\$12.9	\$7.7	\$5.2	\$7.9	\$10.3	\$7.5	\$2.8	119.6	148.1	102.4	45.8
Households	\$0.0	\$23.3	\$0.0	\$23.3	\$0.0	\$12.7	\$0.0	\$12.7	0.0	207.8	0.0	207.8
Totals	\$132.9	\$132.9	\$64.0	\$68.9	\$62.3	\$62.3	\$26.6	\$35.7	911.4	911.4	342.3	569.1

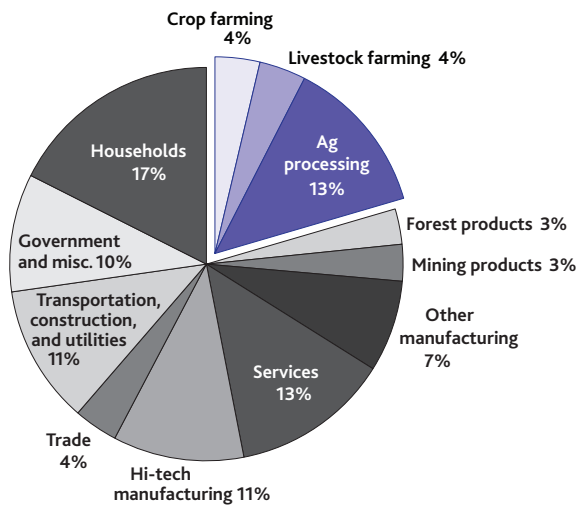


Figure 7. Idaho base output by sector of the Idaho economy, 2013.

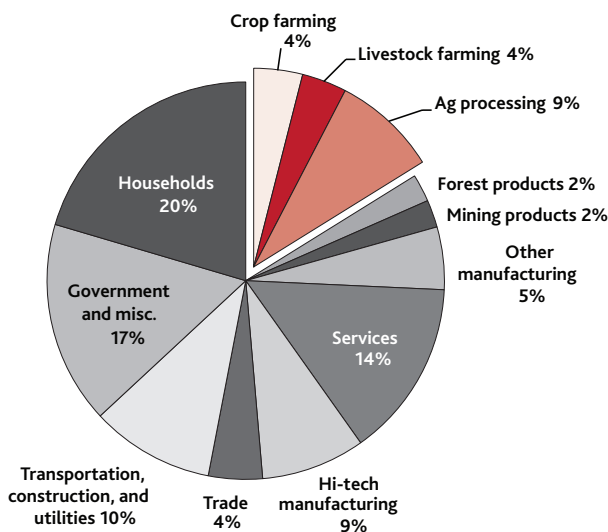


Figure 8. Idaho base value added by sector of the Idaho economy, 2013.

economy (figure 7). Of that total base output, \$14.4 billion was from direct sales to export markets and \$12.8 billion was from indirect sales from the non-base businesses that support the agribusiness industry. In other words, the \$14.4 billion of agribusiness exports rippled throughout Idaho’s economy to create an additional \$12.8 billion in sales of domestic goods and services. The indirect \$12.8 billion are the hidden sales of the agribusiness industry through its backward linkages to tractor dealers, tax accountants, etc. Idaho agribusiness’s 2013 base output exceeded its gross output by \$7.3 billion; thus, agribusiness is a net base industry, part of the export base that drives Idaho’s economy.

Value added (GSP) contribution of agribusiness, 2013

Wages, profits, and taxes, the returns to agribusiness, have historically been low. Low returns are reflected in agribusiness’s gross contribution to Idaho’s GSP in 2013—\$5.8 billion or 9% of Idaho’s GSP—the 4th largest in the state (table 2). Using the base measure, however, agribusiness was the third-ranked value-added industry, behind government and households. The base contribution of agribusiness to GSP was \$10.1 billion in 2013, 16% of total value added (figure 8). Of agribusiness’s contribution to GSP, \$4.0 billion was from exports and \$6.0 billion was the domestic indirect value added from non-base businesses that support agribusiness. Total base value added was \$4.2 billion more than agribusiness’s gross value added; thus, agribusiness is a net base industry, part of the export base that drives Idaho’s economy.

Jobs contribution of agribusiness, 2013

Both farming and agricultural processing are labor efficient and will continue to substitute capital for labor. A decreasing number of farmers will continue to produce more output, and processors will continue to

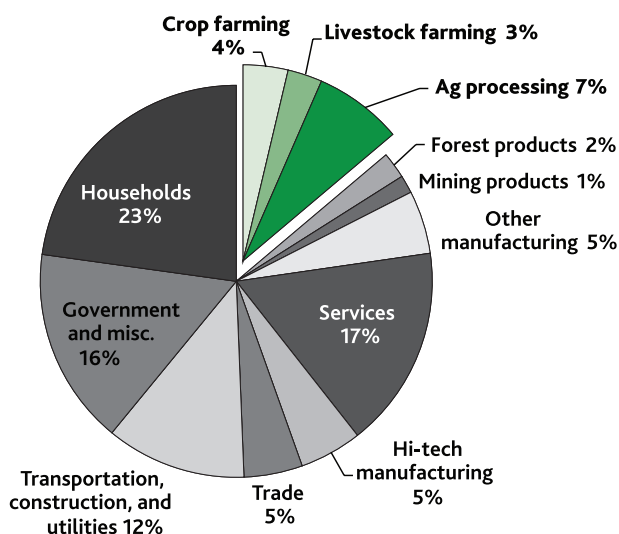


Figure 9. Idaho base jobs by sector of the Idaho economy, 2013.

implement labor-saving innovations. For example, in 2012 Simplot announced the layoff of 1,000 employees, to be replaced by 200, while continuing to process the same amount of potatoes.

Low employment is reflected in agribusiness's gross contribution to Idaho's employment. Gross jobs in agribusiness are 6% (58,400 jobs) of total jobs in Idaho, making agribusiness the fifth-largest employer in the state (table 2).

Using the base measure, agribusiness rises to be the fourth-ranked employer, behind services, households, and government (figure 9). The base contribution of agribusiness to employment is 126,000 jobs or 14% of total employment in Idaho's economy. Agribusiness is a hidden employer. Of total jobs, 40,000 are attributable to direct sales to export markets and 86,000 are indirect jobs from non-base businesses that support the agribusiness industry. Agribusiness has 68,000 more base jobs than gross jobs; thus, agribusiness is a net base industry, part of the export base that drives Idaho's economy.

Authors — Philip Watson and Garth Taylor are economists in the Department of Agricultural Economics and Rural Sociology, University of Idaho, Moscow. **Ben Eborn** is an Extension Agricultural Economist in the same department, based in Bear Lake County.

University of Idaho Extension

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Barbara Petty, Interim Director of University of Idaho Extension, University of Idaho, Moscow, Idaho 83844. The University of Idaho has a policy of nondiscrimination on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity/expression, age, disability or status as a Vietnam-era veteran.

Published December 2015

Glossary

Direct effect. Economic activity generated by exports of any industrial sector.

Exports. Sales of goods and services to customers outside Idaho—to other states as well as international markets.

Indirect effect. Economic activity generated by industries purchasing inputs from other local businesses to support the sales of exports.

Industry or Sector. An aggregation of like businesses that purchase and sell similar products and/or services.

Jobs. Full- and part-time employment, including business proprietors.

Sales and Output are used interchangeably. "Output," however, is more accurate than "sales" because some businesses use goods of their own manufacture. USDA NASS defines farm sales as "farm gate cash receipts" for a given calendar year. The cash receipts definition undercounts the value of farm output because farmers produce crops (mainly forages) that feed their own livestock and thus are not sold at the farm gate. For trade businesses, gross sales are defined as the markup, net of the cost of goods.

Value added or gross state product (GSP). The sum of (1) wages and salaries, (2) proprietor's income, (3) indirect business taxes, and (4) dividends, interest, and rents.

Data Sources

Micro IMPLAN Group. IMPLAN Professional User's Guide. Minnesota IMPLAN Group, Inc. Stillwater MN. Dec. 2012.

USDA National Agricultural Statistics Idaho. 2015.

US Department of Commerce Bureau of Economic Analysis. 2015.

Methodology

The methods follow: Edward Waters, Bruce Weber and David Holland. 1999. The Role of Agriculture in Oregon's Economic Base: Findings from a Social Accounting Matrix. *Journal of Agricultural and Resource Economics* 24(1): 266–280.

© 2015 by the University of Idaho