

# OHFOOD: An Ohio Food Industries Input-Output Model (Version 10.0, April 2008)

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by  
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## *Abstract*

OHFOOD, an acronym for Ohio food, is a sophisticated input-output model. The model is designed specifically to capture the interdependencies and linkages among various sectors and industries composing the complex economy of Ohio. The input-output model of Ohio's economy also maintains substantial detail on the food and agricultural sectors. The interindustry model describes the linkages among various sectors of the economy and is designed specifically to provide estimates of the economic importance of the food and agriculture-related cluster, along with the general manufacturing and service sectors, of the Ohio economy. Also, OHFOOD provides several types of economic multipliers for detailed food and agriculture-related sectors of the economy.

This executive summary provides a brief overview of the importance of food and agriculture to the state's economy, based on the interindustry model. The analysis indicates that for 2006 the food and agricultural cluster of Ohio's economy contributed 11 percent of the output, added 8 percent to Ohio's gross state product, accounted for 14 percent of the total employment, and contributed 8 percent of total income.

In 2006, the Ohio economy generated a gross state product (GSP) of \$461.3 billion. The food and agricultural cluster's share of this GSP was \$38.3 billion, or \$8.31 of each \$100 of Ohio GSP. For 2006 the contributions to GSP for the five components of the agrifood cluster are \$1.7 billion for farm inputs, machinery, and professional services; another \$2.6 billion from agricultural production; about \$12.4 billion from processing; an additional \$12.8 from food wholesaling and retailing; and another \$8.7 billion in food services.

Of these 5 major components comprising the food and agriculture-related cluster, the food wholesaling and retailing sectors are the largest in terms of contribution to GSP, contributing about one-third of the total contribution to GSP of \$38.3 billion by the entire food and agriculture cluster. Processing food and forestry-related products is the second largest sector in terms of GSP, accounting for another one-third to the total GSP of \$38.3 billion by the entire food and agriculture cluster. The food service sector is notable for its contribution to employment. This sector accounts for over 416,000 jobs, or 45 of every 100 jobs within the entire agrifood cluster. The total food and agriculture complex employs over 924 thousand jobs in Ohio in 2006, or about one of every seven jobs (14 percent) in Ohio.

Keeping the OHFOOD model updated with the latest data available is an on-going task of the Farm Income Enhancement Program within the Department of Agricultural, Environmental, and Development Economics of The Ohio State University. The complete study may be printed from a downloadable pdf file available from the AED Economics Department of The Ohio State University at: <http://aede.osu.edu/resources/docs/display.php?cat=21>

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**Table 1. Ohio: Output, Gross State Product, Income, and Employment, 2006.**

	Gross State			
	Total Output	Product (GSP)	Income	Employment
	\$ Millions	\$ Millions	\$ Millions	Person Years
<b><u>Food &amp; Related Agricultural Cluster</u></b>				
Farm Inputs, Equip & Prof Services	6,715.0	1,696.3	1,636.2	32,560
<b>Farming</b>	<b>6,392.6</b>	<b>2,620.4</b>	<b>2,516.8</b>	<b>95,993</b>
Beef & Dairy Cattle, Milk Production	1,155.7	116.5	92.2	13,803
Poultry & Egg Production	471.7	205.5	203.9	1,449
Hogs & Other Farm Animals <sup>a</sup>	489.9	59.6	52.1	16,833
Grains	1,092.2	528.6	508.9	26,773
Soybeans & Other Oil Crops	1,191.2	648.3	622.4	18,826
Misc Crops, Hay, Sugar, Tobacco & Nuts	454.8	238.4	229.7	3,905
Fruits & Vegetables	283.6	177.1	173.7	3,087
Nursery & Horticulture Production	601.1	486.9	480.8	8,221
Forestry, Hunting & Fishing	652.3	159.5	153.1	3,096
<b>Processing</b>	<b>46,059.8</b>	<b>12,407.1</b>	<b>11,776.8</b>	<b>123,974</b>
Food Processing	30,016.7	6,864.8	6,356.6	59,597
Processed Meat, Fish, Poultry & Eggs	3,567.5	548.8	523.0	8,729
Dairy Processing	5,729.4	1,226.6	1,181.6	7,833
Processed Food & Kindred Products	13,285.7	3,558.8	3,464.0	34,142
Grain Milling & Flour	385.3	47.9	45.4	444
Fats & Oils Processing	1,497.7	64.1	54.9	635
Beverage Processing	5,551.0	1,418.6	1,087.6	7,813
Wood/Paper/Furniture Manufacturing	16,043.1	5,542.3	5,420.1	64,377
<b>Food &amp; Forestry Wholesale/Retail</b>	<b>19,294.6</b>	<b>12,845.8</b>	<b>10,204.8</b>	<b>255,550</b>
<b>Food Services<sup>b</sup></b>	<b>19,759.2</b>	<b>8,744.3</b>	<b>7,829.8</b>	<b>416,278</b>
<b>Total Food &amp; Ag Cluster</b>	<b>98,221.2</b>	<b>38,313.9</b>	<b>33,964.4</b>	<b>924,356</b>
<b><u>General Manufacturing &amp; Service Sectors</u></b>				
Mining	754.4	328.0	260.8	2,322
Stone, Clay & Glass	9,158.9	4,130.2	4,035.6	34,760
Metal Industries	51,597.7	17,506.0	17,123.7	151,010
Chemicals, Polymers & Petroleum	71,615.6	17,916.7	17,298.6	126,676
Construction	42,808.1	18,434.5	18,193.1	354,581
Textiles, Apparel, Accessories, Yarn & Leather	3,024.9	1,010.0	992.8	15,971
Machinery, Equipment & General Mfg	43,912.7	16,373.0	16,005.6	202,447
Motor Vehicles, Allied Equip & Services	89,927.2	21,999.1	20,186.7	273,079
Transportation & Communication	26,161.7	11,137.5	10,790.5	145,953
Computer & Electronic Products	16,037.8	7,546.1	7,435.9	91,098
Publishing & Information Technologies	14,261.6	7,182.2	7,075.2	80,718
Wholesale & Retail Trade	66,459.2	44,246.6	35,149.8	683,971
Business, Professional & Personal Services <sup>c</sup>	76,813.1	42,275.8	41,333.7	771,005
Financial, Legal & Real Estate	134,952.0	91,144.5	81,933.0	595,306
Leisure Activities & Entertainment	27,606.8	13,919.5	12,240.5	240,073
Health Care & Social Assistance	71,576.4	40,261.7	39,763.2	789,046
Electricity, Gas & Sanitary	15,839.4	9,817.9	8,459.0	41,145
Education Services	43,904.2	41,287.0	41,252.6	801,797
Government, Military & Non-Profit	25,220.2	16,471.7	16,452.0	291,033
Others (Households & Sector Adjustment)	0.0	0.0	0.0	61,501
<b>Total of Mfg &amp; Service Sectors</b>	<b>831,631.7</b>	<b>422,988.2</b>	<b>395,982.4</b>	<b>5,753,493</b>
<b>Total Economy</b>	<b>929,852.9</b>	<b>461,302.0</b>	<b>429,946.8</b>	<b>6,677,849</b>

Note: The wholesaling and retailing sector is one sector in the input-output model but is disaggregated. *County Business Patterns 2005* is used to estimate the percentage of payroll and employment that is attributable to the food cluster. The percentage of payroll (22.5) is used to estimate the proportion of food cluster output, gross national product, and income. The percentage of employment (27.2) is used to estimate the proportion of food cluster employment.

<sup>a</sup> Other farm animals include sheep, goats, horses, aquaculture production, & miscellaneous livestock.

<sup>b</sup> Excludes hotel/motel food service.

<sup>c</sup> Includes diverse service items such as advertising, cleaning, barber and beauty shops, and funerals.

Source: Computed