The Economic Impact of New Jersey's Food System: A 2010 Update

Bulletin E332





Cooperative Extension

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New Jersey's agricultural and food production, processing, and distribution industries support the continued accessibility to food for the state's 8.7 million residents. The importance of New Jersey's food system extends well beyond the state's borders, by directly serving the needs of consumers in New York City, Philadelphia, and other major metropolitan centers along the East Coast. It also facilitates the production and trade of food items destined for other regions of the nation and world.

The agricultural and food industries collectively constitute a system of interrelated activities that not only serves a function vital for human subsistence, but also represents a critical component of New Jersey's economy. The size and complexity of the food system, however, is generally not well understood. Information on the composition and importance of the food system is useful in a variety of policy making contexts, including monitoring of food safety, prioritizing sectors for state economic development assistance, workforce development and training initiatives, facilitating international trade, and planning for food defense and critical infrastructure protection.

This bulletin is therefore intended to inform policy making and industry leadership by measuring the composition, size, and economic significance of the state's food system. The impact of New Jersey's agribusiness and food firms on the State economy are quantified using measures of direct gross output (sales), employment, and value added, as well as by assessing the economic linkages between the food system and other supporting industries.

Snapshot of New Jersey's Food System

The United States Census Bureau and the National Agricultural Statistics Service conduct, respectively, a series of economic censuses and a Census of Agriculture every five years that allow for analysis of changes in the size and structure of the national economy. All private sector businesses are required by law to participate in the censuses, data from which are classified under the North American Industry Classification System (NAICS) to support industry level analysis.

Data from the most recent (2007) Census of Agriculture and economic censuses were compiled to quantify the economic contributions of New Jersey's food system [Table 1]. The contributions of firms with paid employees as well as non-employers were tabulated. For purposes of this analysis, the food system was defined broadly to comprise five major sectors.

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Agricultural Producers [NAICS 111 and 112]

Farms are defined for census purposes as places "from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold." Farms are typically classified based on whether they primarily produce crops for food and fiber or animals and animal products.

In 2007, New Jersey had 10,327 farms producing products valued at $986.9 million. During the same period, New Jersey farms employed 24,385 workers, including both family labor and seasonal and non-seasonal workers[1]. Total hired labor expenses were $237.7 million.

Food and Beverage Manufacturers [NAICS 311 and 312[2]]

Manufacturers are defined as establishments that transform, through mechanical, physical, or chemical means, livestock and agricultural products into products for intermediate or final consumption. Also included are manufacturers of non-alcoholic, fermented, and distilled alcoholic beverages. In 2007, New Jersey had 1,660 food and beverage manufacturers, roughly 42 percent of which were operations reporting no paid employees; many of these were small bakeries. Industry sales totaled $12.12 billion. Food and beverage manufacturing businesses employed 32,782 workers with wages of $1.29 billion.

Food and Beverage Wholesalers [NAICS 4244, 4248, 42512044, and 42512048]

Food and beverage wholesalers are defined as wholesale merchants, distributors, import/export merchants, agents, brokers, and other businesses that serve as intermediaries in the food distribution chain by selling goods for which they have assumed ownership or arranging the sale of goods owned by others.

In 2007, about 42 percent of New Jersey's 3,261 food wholesale and brokerage operations did not have paid employees, reflecting the presence of a large number of small distributors operating in the industry. The food wholesale sector generated sales of $56.81 billion. The 45,260 workers employed in the industry earned a total of $2.40 billion in wages.

Food and Beverage Retailers [NAICS 445]

Food retailers are defined to include establishments that sell food at fixed points of sale for consumption off premises, including supermarkets, grocery stores, convenience stores, and specialty stores selling meats, fruits, vegetables, seafood, baked goods or other food items. Other retailers that primarily sell general lines of merchandise, which may include food, (i.e., "big box" retailers, pharmacies, price clubs, supercenters, etc.) are not included.

In 2007, New Jersey had 11,227 food retail establishments, more than 38 percent of which had no paid employees (small independent businesses often viewed as "mom and pop" stores). Food retailers generated sales of $22.89 billion and employed 107,638 workers earning wages of $2.41 billion.

Foodservice and Drinking Places [NAICS 722]

Foodservice establishments prepare meals for on-premises consumption, take out, or delivery to a customer's location, and include full- and limited-service restaurants, caterers, and foodservice contractors that provide meals in institutional and other settings.

Sixty-one percent of all post-farm gate food businesses are engaged in some form of foodservice. They range from large chain quick-serve restaurants to small catering businesses and from institutional foodservice contractors to independent white tablecloth full-service restaurants. Roughly 30 percent of the 25,956 foodservice businesses operating in 2007 did not report paid employees. In total, foodservice firms posted sales of $12.56 billion and employed 221,700 workers. Industry payroll totaled $3.31 billion.

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1 Only hired employees are considered. Excluded from this count are the 15,936 farm proprietors (operators) responsible for day-to-day decision making (USDA-NASS, 2009). Their omission is intended to make employment data for the farm sector more comparable with employment figures in the post-farm gate sectors, which do not report the number of proprietors or self-employed individuals.

2 NAICS 312 is a broader classification comprising the manufacturing of beverage and tobacco products. However, the economic censuses only report one tobacco product manufacturer; therefore, data disclosure issues prevent further decomposition of this sector.

Table 1 aggregates data across these five sectors to provide a snapshot of the size and composition of the New Jersey food system. In 2007, the New Jersey food system comprised 10,327 farms and 42,104 post-farm gate food firms. One-third of food businesses (14,146 firms) were classified as "non-employers." These operations tended to be small proprietorships and business partnerships as well as small corporations without payrolls.

Table 1: Composition of New Jersey's Food System (2007).

	Production Agriculture	Food & Beverage Manufacturing	Food & Beverage Wholesale	Food & Beverage Retail	Foodservice & Drinking Places	TOTAL Food System*
Firms/Farms (Number)	10,327	1,660	3,261	11,227	25,956	42,104 firms 10,327 farms
Total Industry Output ($ billion)	$0.99	$12.12	$56.81	$22.89	$12.56	$105.37
Direct Value Added ($ billion)	$0.54	$3.03	$6.99	$4.49	$6.26	$21.31
Paid Employees** (Number)	24,385	32,782	45,260	107,638	221,700	431,765
Payroll ($ billion)**	$0.24	$1.29	$2.40	$2.41	$3.31	$9.65

*Columns may not add to total due to rounding error.
**For production agriculture, hired farm labor (which includes paid family members, seasonal workers, etc.) is used as a proxy for "paid employees."

The gross sales volume of New Jersey post-farm gate food firms totaled $104.38 billion in 2007. Coupled with the $986.9 million worth of agricultural products sold by New Jersey farmers, the gross sales volume generated within the New Jersey food system amounted to $105.37 billion in 2007. A more refined measure of an industry's true economic contributions is value added or, in other words, its contribution to gross state product (GSP). The concept of value added allows the elimination of the multiple counting of economic activity that occurs when intermediate goods developed in one industry are utilized as inputs by another industry. For example, the sale of a tomato by a farmer to a tomato soup manufacturer contributes to output in the agricultural sector, but is again considered (double counted) when the output of the manufacturer is measured. New Jersey food firms and agribusinesses were found to directly contribute an estimated $21.31 billion to GSP in 2007[3].

The food system also contributes substantially to New Jersey's employment base. In 2007, New Jersey's food firms employed 431,765 workers earning wages of $9.65 billion. The foodservice and food retail sectors were by far the largest employers, accounting for 76 percent of the workers employed in the food system.

Economic Impact of the Food System in New Jersey

Economic impact analysis is based on the premise that a regional economy is built upon inter-industry dependencies and that the expansion (or contraction) of economic activity in one industry will have ripple effects that move throughout the entire economic system. The food system, for example, utilizes a wide range of business services (e.g., data processing and management, accounting, printing, advertising, maintenance, and legal services). Changes in the business volume conducted by food firms will impact these, and other, support industries. These are often referred to as indirect effects. For example, industries producing goods and services utilized by a food manufacturer will expand their own output as the manufacturer's output increases. Industries serving these support industries also face increased demand for their goods and services, and so forth.

3 IMPLAN Professional® Version 2.0 (2007 data) was used to estimate the direct value added of the New Jersey food system.

Table 2: Total Economic Impacts of New Jersey's Food System (2007).

Direct Value Added	$21.31 billion
Indirect and Induced Value Added	$15.62 billion
Total Value Added	**$36.93 billion**
New Jersey Private Sector GSP	$413.71 billion
Food System % of Total Private Sector GSP	**8.9%**
Direct Employment	431,765 jobs
Indirect and Induced Employment	155,610 jobs
Total Employment Impact	**587,375 jobs**
NJ Private Sector Employment (March 2007)	3,431,200
Food System % of Private Sector Employment	**17.1%**

Economic activity in the food system also impacts other sectors of the economy through increased household spending. Wages paid by farmers and food firms are spent and re-spent throughout the economy. Thus, the food sector induces consumer spending on a variety of goods and services ranging from dental and medical care to real estate to restaurant meals. These "induced effects" ripple throughout the economy as these other industry sectors, in turn, expand sales and purchases and hire more workers. These multiplier effects tend to diminish over time because each round of spending is reduced by the amount of money directed outside of the economic system being studied. These "leakages" include, for example, payments to social security, income taxes, personal savings, and payments for imported goods and services.

IMPLAN®, a widely used input-output modeling system, provides a model of the New Jersey economy and was used to measure the economic linkages of the state's food system. The value added created by food firms through backward linkages to supporting industries and through increased household spending amounted to $15.62 billion in 2007 [Table 2]. Therefore, the total impact on New Jersey's gross state product attributed to the food system was on the order of $36.93 billion. This translates into 8.9 percent of private sector GSP. *In other words, when the indirect and induced economic impacts of the food system are considered, roughly one out of every 11 dollars of economic activity in New Jersey was linked to the production, processing, or distribution of food.*

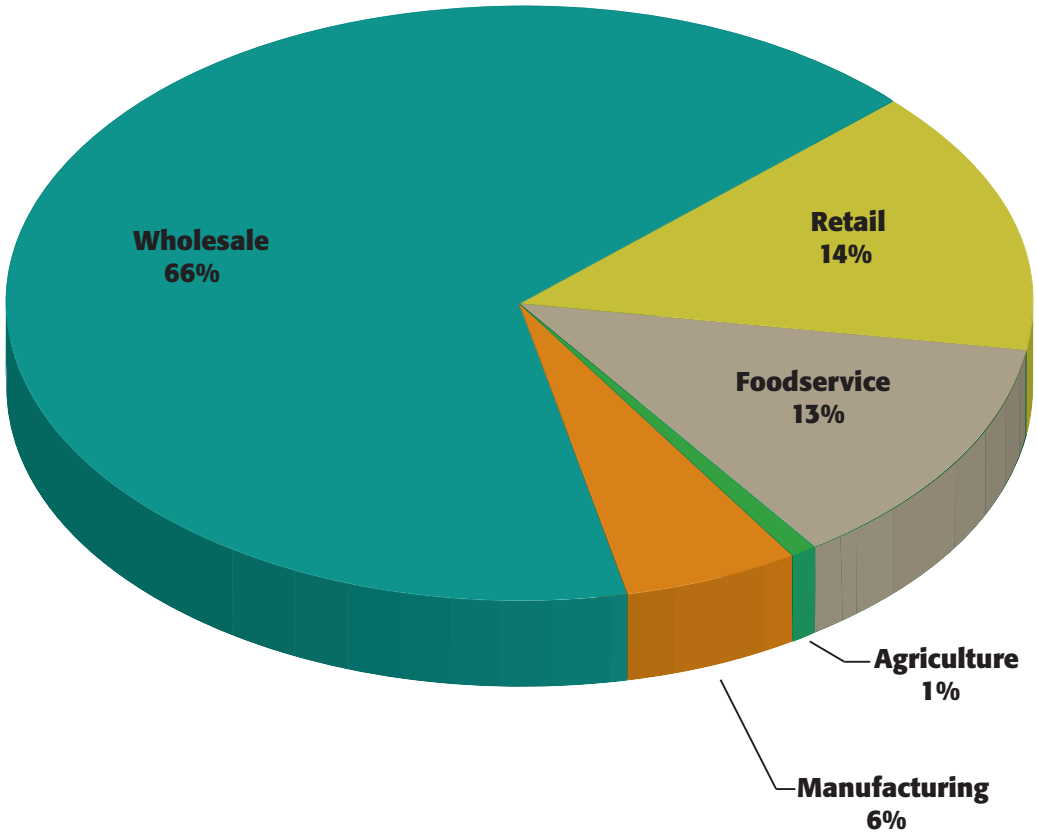
Food firms are also a substantial part of the state's employment base. Directly employing nearly 431,765 workers in 2007, the food system was among the largest employers in the state[4]. IMPLAN® analysis shows that an additional 155,610 jobs were created in other industries as a result of the economic activity stimulated by food businesses, bringing the food system's total employment impact to 587,375 jobs. *To place this in context, approximately 1 out of every 6 private sector jobs (17.1 percent) were linked to the food system in 2007.*

4 Employment in the post-farm gate food firms is as of March 12, 2007. This figure excludes individuals that operate firms with no reported payroll (i.e., sole proprietors and partners operating their own businesses), farm operators, and contract farm workers.

Recent Growth in the Size of the Food System

Comparison with a 2002 economic impact assessment (Schilling and Sullivan, 2006) shows that total food system output increased between 2002 and 2007. Over this period, sales by New Jersey farmers and food firms grew by approximately $23.6 billion, from $81.7 billion to $105.4 billion, an increase of 28.9 percent. This translates into an expansion of 11.8 percent in real (inflation-adjusted) terms, more than double the rate of growth in the overall New Jersey economy (7.1 percent) experienced during this time[5]. As shown in Figure 1, the food wholesale sector was the largest driver of this growth, reflecting the significant growth in interstate movement of food and international food trade facilitated by New Jersey brokers and wholesalers. Direct employment also rose from 399,664 to 431,765 workers (an 8.0 percent increase). This growth in jobs significantly outpaced the 1.8 percent growth in total private sector employment occurring between 2002 and 2007.

Figure 1. Breakdown of $23.6 Billion Growth in Nominal Food System Sales (2002-2007).



Conclusions

This research bulletin examines the economic impacts of the food system on New Jersey's private sector economy and employment base. The food system comprises a complex set of business activities that involve the production, processing, and distribution of food and beverage products destined for consumption within the state and elsewhere. However, these activities are inextricably linked to a large number of other business sectors within the state.

Economic impact estimates show that food firms and agribusinesses generated 8.9 percent of private sector gross state product and 17.1 percent of jobs in 2007. These data demonstrate the vital economic importance of the food system to the state's economic health and suggest the value of understanding the opportunities and challenges that will impact future growth and performance within this sector

5 Sales were deflated using the consumer price index for all urban consumers (all items) provided by the U.S Department of Labor, Bureau of Labor Statistics.

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