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# The Status and Condition of New Jersey's Food Manufacturing Industry

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Food, Confectionery, Flavors & Extracts, and Beverage Processing

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Food manufacturing industry problems and recommendations herein contained (in parts IV and V) are presented exactly as discussed during the focus group sessions of the food processing and food ingredients/flavors and extracts industries. These problems and recommendations do not necessarily represent the views of the authors or the institution(s) they represent.

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Prepared for

**The New Jersey Department of Agriculture**  
Arthur R. Brown, Jr., Secretary

**The Division of Rural Resources**  
George Horzepa, Director

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Prior to the commencement of this project, an advisory committee comprising individuals from Rutgers University and the NJDA was established to provide guidance on the direction of the study and insight into the needs of the industry. The study team would like to thank the following members of this Rutgers/NJDA advisory committee:

## *Rutgers University*

Daryl Lund	Former Dean, Cook College
Rod Sharp	Director of Research, NJAES/Dean of Research, Cook College
Jack Rossen	Senior Associate Director, Center for Advanced Food Technology (CAFT)
Stan Cajigas	Manager, CAFT Technology Extension Program (C-TEP)
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Karen Kritz	Agribusiness Development Representative
Donna Callahan Balara	Former Bureau Chief, Market Development

The advisory committee was expanded to include industry and trade association members, who provided further guidance on the direction and scope of this project. The study team would like to thank the following members of industry and trade associations who participated on the



expanded advisory committee. They are listed below in order of name, with industry segment represented, company affiliation, and location duly identified.

Joyce Bianco	Food Processing	Ron-Son Mushroom Prod., Glassboro, N.J. N.J. Food Processing Association, Trenton, N.J.
John Celentano	Food Processing	Independent Food Industry Representative, (Formerly of Sorrento Cheese) Blairstown, N.J.
John DiGiacinto	Food Processing	PSE&G, Paramus, N.J.
Charles Manley	Food Ingredients	Takasago International Corp., Teterboro, N.J.
Glen Roberts	Food Ingredients	Flavors and Extracts Manufacturers Assoc., (FEMA), Washington, D.C.
Fred Stults	Food Ingredients	Firmenich, Princeton, N.J.
Lawrence Fidel	Restaurants	Formerly of the N.J. Restaurant Association, Somerset, N.J.
Brooke Tarabour	Restaurants	Food Bank of Monmouth/Ocean Counties, Spring Lake, N.J.
Linda Doherty	Supermarkets/Wholesalers	N.J. Food Council, Trenton, N.J.
Donna Callahan Balara	Wholesalers	Agriconsultants, Marlton, N.J. (Formerly of the Division of Markets, NJDA)
Marvin Spira	Wholesalers	Eastern Dairy, Deli, Bakery Association, (EDDA), Hasbrouck Heights, N.J.

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***Food Processing***

Joyce Bianco	Ron-Son Mushroom Products- N.J. Food Processing Assoc.	Glassboro, N.J.
Stan Cajigas	CAFT/C-TEP - Rutgers University	Piscataway, N.J.
Bob Cartwright	Redpack Foods, Inc.- N.J. Food Processing Assoc.	Cedarville, N.J.
John Celentano	Independent Food Industry Representative	Blairstown, N.J.
John DiGiacinto	PSE&G	Paramus, N.J.
Karen Kritz	New Jersey Department of Agriculture	Trenton, N.J.
Jack Rossen	CAFT- Rutgers University	Piscataway, N.J.

***Food Ingredients***

Richard Goldberg	National Assoc. of Fruits, Flavors & Syrups (NAFFS)	Matawan, N.J.
Charles Manley	Takasago International Corp.	Teterboro, N.J.
Glen Roberts	FEMA	Washington, D.C.
Fred Stults	Firmenich	Princeton, N.J.

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***Northern New Jersey Food Processing Companies***

Al and John's, Inc.	Paterson, N.J.
Andrea Ravioli	Orange, N.J.
Best Foods Baking Group	Totowa, N.J.
Darling International	Newark, N.J.
Goya Foods Company	Secaucus, N.J.
Nabisco Biscuit Company	East Hanover, N.J.
New Jersey Food Processing Association	Trenton, N.J.
Sorrento Cheese Company	Blairstown, N.J.
Zerega's Sons, Inc.	Fairlawn, N.J.

***Southern New Jersey Food Processing Companies***

Crown Cork & Seal Co.	Philadelphia, P.A.
Cumberland Dairy	Rosehayn, N.J.
Gorton's Seafood	Millville, N.J.
New Jersey Food Processing Association	Trenton, N.J.
Progresso Quality Foods	Vineland, N.J.
Redpack Foods, Inc.	Cedarville, N.J.
Ron-Son Mushroom Products	Glassboro, N.J.
Violet Packing Company	Williamstown, N.J.

***Food Ingredients, Flavors and Extracts Companies***

Cangemi Consultants	Ridgewood, N.J.
FEMA	Washington, D.C.
Firmenich	Princeton, N.J.

General Spice	South Plainfield, N.J.
Haarmann and Reimer	Springfield, N.J.
Hagelin & Company	Branchberg, N.J.
Meer Corporation	North Bergen, N.J.
RedStar Bioproducts	Clifton, N.J.
Scarinici & Hollenbeck (representing NAFFS)	Secaucus, N.J.
Takasago International	Teterboro, N.J.

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***Northern New Jersey Food Processors***

Aarhus, Inc.	Port Newark, N.J.
Austin, Nichols & Co., Inc.	Carlstadt, N.J.
Biazzo Dairy Products	Ridgefield, N.J.
Bocconcino Food Products	Moonachie, N.J.
CPC International	Englewood Cliffs, N.J.
Cambridge Bakery Products	Jersey City, N.J.
Celentano Brothers	Verona, N.J.
Four Sisters Winery	Belvidere, N.J.
Harrison Baking	Harrison, N.J.
Kings Road Wineries	Asbury, N.J.
Lea & Perrins, Inc.	Fairlawn, N.J.
Lombardo Ravioli	Fairview, N.J.
Marathon Enterprises, Inc.	East Rutherford, N.J.
Papetti's Hygrade Egg Products	Elizabeth, N.J.
Paterson Soup Works	Somerset, N.J.
Sylvan Farms Winery	Passaic, N.J.
Thomas J. Lipton Company	Englewood Cliffs, N.J.
Thumann's	Carlstadt, N.J.
Tuscan Dairy Farms, Inc.	Union, N.J.
World Class Kitchens	Linden, N.J.

***Southern New Jersey Food Processors***

Clement Pappas & Co.	Seabrook, N.J.
Manischewitz Foods	Vineland, N.J.
Ocean Spray Cranberries	Bordentown, N.J.

***Food Ingredients Companies***

Dragoco	Totowa, N.J.
Florasynth, Inc.	Teterboro, N.J.
Gillette Foods	Union, N.J.
International Flavors & Fragrances	New York, N.Y.
National Starch	Bridgewater, N.J.

The focus group meetings were facilitated by Barry Berkowitz and Philip Eisner, who are President and Vice President, respectively, of Berkowitz & Associates, Inc., a management consulting firm located in Westfield, New Jersey. In addition to the focus groups, a series of telephone interviews were conducted with individuals from several sectors that support the food industry in New Jersey, including insurance, trucking, and refrigeration. These interviews were conducted by Donna Callahan Balara, President of Agriconsultants of Marlton, New Jersey (formerly of the Division of Markets, NJDA).

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# Executive Summary

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The food manufacturing industry comprises food, confectionery, beverage, ingredients, and flavors and extracts manufacturers. New Jersey's food manufacturing industry is a major component of the state's food production and distribution complex, as well as the state's manufacturing sector. Like other manufacturing industries, the food manufacturing industry is important to the stability of the New Jersey economy. In the last few decades, New Jersey has lost manufacturing facilities to other states in record numbers.

Most components of New Jersey's food manufacturing industry have experienced significant declines in recent decades. Remediation of this may require public policy intervention. The New Jersey Department of Agriculture (NJDA) is interested in enhancing the economic development of the food industry by collaborating with other state agencies in improving the state's business climate of food firms. Consequently, the NJDA commissioned Dr. Adelaja of Rutgers University to conduct an economic analysis of the food manufacturing industry (among others), research the problems faced by the industry that could be dealt with at the state level, and develop recommendations to state government for improving the business climate. This report contains an economic analysis of the food manufacturing industry as well as information obtained from three focus group sessions with industry leaders and representatives on industry issues and problems that could be dealt with at the state level and recommendations for improving economic performance. Three other reports covering the food wholesale, food retail, and food service industries are simultaneously being published.

In 1992, the food manufacturing industry in New Jersey contributed to the state's economy more than \$9.6 billion in sales (value of shipments) and \$4.5 billion in value added. It also paid out more than \$1 billion in wages annually to 33,500 production and nonproduction workers. Some \$86.8 billion in value of shipments and \$46.0 billion in value added were generated in 1992 in the overall manufacturing sector in New Jersey. Food manufacturing ranked second, behind manufacturers of chemical and allied products, in total value of shipments and value added (11 and 10 percent, respectively of the total manufacturing sector's value of shipments and value added). It also contributed 6 percent of total employment, 5 percent of total payroll, 13 percent of the cost of materials used, and 7 percent of new capital expenditures in New Jersey's manufacturing sector.

Relative to other components of the state's food industry, food manufacturing accounted for 11 percent of total employment, 20 percent of annual payroll, and 18 percent of the food industry's sales volume. Furthermore, food manufacturing is an important source of relatively high-paying jobs in the state's food industry and the economy as a whole. With an average annual salary of \$30,558, food manufacturing fills an important niche in the employment spectrum by providing middle-income jobs.

One of the largest sectors of the food manufacturing industry is the bakery segment which ranks first in terms of establishments, employment, and payroll. It represents 26 percent of food manufacturing establishments, 22 percent of employment, and 20 percent of the annual payroll. Another leading sector is beverage manufacturing, which includes flavors and extracts manufacturing. Bev-

erage manufacturing ranks first in the industry in terms of value of shipments and value added. It represents 23 percent of the industry's value of shipments, 27 percent of value added, 20 percent of annual payroll, 15 percent of employment, and 19 percent of cost of materials in total food manufacturing.

New Jersey's food manufacturing industry has experienced a significant decline during the 25 years from 1967 to 1992. The number of establishments decreased more than 40 percent and employment fell by nearly 45 percent. Despite this large decline in employment, the total annual payroll in food manufacturing more than doubled, although this is considerably less than increases in other industries within the state's food complex. The value of shipments in the food manufacturing industry increased by only 224 percent over these 25 years, which is also considerably less than the other food complex components. In real terms after accounting for inflation, the value of shipments actually declined by 27 percent during this time. Value added in food manufacturing increased at a greater nominal rate of 252 percent. This is relatively higher than the growth in the value of shipments, suggesting that New Jersey's food manufacturing firms have become more highly value added. In real terms, value added actually fell by 13 percent from 1967 to 1992.

Manufacturing as a whole in New Jersey also experienced declines between 1967 and 1992. However, the contraction was more acute in the state's food manufacturing industry. While the number of all manufacturing establishments in New Jersey fell by 10 percent, the number of food manufacturers fell by more than 40 percent during these 25 years. Employment in all manufacturing declined by 35 percent while it decreased by 45 percent in food manufacturing. The nominal value of shipments grew at a greater rate in manufacturing as a whole (237 percent) than in food manufacturing (202 percent), representing a much more significant decline in real terms for food manufacturing over that of all manufacturing in the state.

One of the reasons that the value of food manufacturing shipments appears to have grown much slower, in nominal terms (or declined to a

greater degree in real terms) over the long-term, relative to the entire manufacturing industry, is because a few sectors grew at rates much greater than the industry as a whole, and greater than food manufacturing. These sectors include instruments, printing and publishing, rubber and plastics, chemicals, and petroleum. Of the 20 different manufacturing sectors, food manufacturing ranked tenth in value of shipments growth over the long-term. This growth was more than growth in apparel, fabricated metal, industrial machinery, and stone, clay, and glass products. Food manufacturing ranked sixth in the change in value added over the long-term (259 percent), which was more than all sectors except instruments, printing and publishing, chemicals, rubber and plastics, and furniture and fixtures. The decline in food manufacturing employment over the long-term (45 percent decline) was less than the declines in electronics, transportation, primary metals, and textiles, but more than instruments, rubber and plastics, lumber, furniture, chemicals, paper, and petroleum.

While food manufacturing fared worse than all manufacturing between 1967 and 1992, it has fared better than manufacturing as a whole over the shorter run. From 1987 to 1992, employment loss in food manufacturing slowed to 7 percent while it fell by 17 percent for all manufacturing. The number of food manufacturing establishments fell by 4 percent, over these 5 years, while employment in all manufacturing declined by 8 percent. The growth in value of shipments, in nominal terms, was slightly greater for food manufacturing (7 percent) than for all manufacturing (5 percent), over the short-run. The nominal growth in value added was only slightly greater in all manufacturing (8.3 percent) than in food manufacturing (7.7 percent).

Between 1987 and 1992, food manufacturing ranked third in least employment decline, fifth in value of shipments growth, and fifth in value added growth compared with other manufacturing sectors. Growth in food manufacturing's nominal value of shipments and value added were greater than all sectors except petroleum, printing, chemicals, and rubber and plastics, over the short-run. The

rate of decline in food manufacturing employment slowed over the short-term to 7 percent, the smallest decline of all manufacturing sectors except for petroleum, which grew by 7 percent. Some have attributed this slow down in the decline of food manufacturing vis-a-vis other manufacturing sectors to attempts by the state in recent years to offset disadvantages of operating in New Jersey. Such supportive state-level activities have included economic development assistance, regulatory reform, and investments in science and technology development.

Examination of New Jersey's share of the national food manufacturing industry shows that given its share of national population, the state is underrepresented in the area of food manufacturing. The New Jersey food manufacturing industry has lost significant ground over the past 25 years, relative to its national counterparts. In 1967, the contributions of New Jersey food manufacturing activities to the nation were disproportionately higher than its population contribution. Furthermore, on a regional basis, while New Jersey still had a high proportion of the Northeast's food manufacturing activity in 1992, over the past 25 years, the state experienced a decline in its share of regional food manufacturing business in terms of value of shipments, payroll, and value added. The decline in New Jersey's share of the national and regional industries suggests an erosion of a comparative advantage in food manufacturing and indicates the presence of major obstacles to the economic growth and viability of this sector in the state.

Given the advantages provided by New Jersey, the state could be an attractive location for food manufacturing firms. These advantages include easy access to a large, affluent, urban and suburban consumer market, proximity to major ports for importing ingredients and exporting finished products, availability of agricultural and fisheries raw products, availability of workers with high technical skills, recognition as a national center for food science research and development, and a critical mass in the flavors and extracts industry.

The Center for Advance Food Technology (CAFT) and its Food Manufacturing Technology

(FMT) facility at Rutgers University are important infrastructures that New Jersey has developed to support the food manufacturing industry. This center has been an integrated part of research, technology development, and outreach programs in the state. New Jersey's business/regulatory climates are considered to be among the most taxing nationwide. Access to research and technology development serve to offset the disadvantages associated with doing business in the state. CAFT/FMT assist the industry with solutions to current technological problems (e.g., extended shelf life of refrigerated products, improved leak detection in packaging), development of new products, and manufacturing startup assistance with minimal capital investment. Flavors and extracts manufacturing firms are among those that have benefitted from the presence of CAFT. Investments in research and technology development should enhance short- and long-term competitiveness of New Jersey's food manufacturing firms.

New Jersey has one of the largest dairy processing capacities in the nation, providing opportunities for dairy-based manufacturing. Given the presence of major pharmaceutical and biotechnology firms in the state, coupled with many highly-trained food scientists, New Jersey is well positioned to be a leader in the rapidly emerging nutraceuticals market. The many food service establishments in the state offer additional opportunities, as restaurant-based food processing is rapidly growing. The significant presence of food retailers has created substantial food wholesale and brokerage opportunities, which food processors benefit from. New Jersey's agricultural sector also provides opportunities for growth in the development of small-scale food processing facilities using local commodities and resources. While supporting the food manufacturing industry, these local, agriculturally-based facilities would also provide much needed alternative income sources for farmers.

It is critical that public policy makers recognize the importance of the state's food manufacturing industry in planning for the development and stability of New Jersey's economy. Manufactur-

ing firms could provide a stable employment base for the state. The large capital investments in manufacturing facilities render such firms less likely to relocate if the business climate is favorable. Service and retail businesses, on the other hand, are more fungible. Furthermore, given the high level of technical and managerial skills needed in food manufacturing, higher paying jobs are generated relative to the service sector. In general, food manufacturing is less environmentally threatening, compared with other types of manufacturing such as chemicals, metals, petrochemicals, etc., which involve relatively more hazardous and toxic waste and by-products. Furthermore, the processing of food may be more politically acceptable to the public because all people need to eat.

It is important that economic development strategies focus on accentuating the state's strengths discussed above. New Jersey has already lost much food manufacturing business to regions of the country with lower costs, more inviting business climates, and more supportive state economic assistance programs. New Jersey can stem the tide with more business-friendly policies without necessarily compromising environmental quality.

The New Jersey Department of Commerce and Economic Development has already recognized the importance and special position of this sector with a "target industry" program for food and beverage processors. This program, initiated in late 1995, is designed to provide custom services to address individual company and industry-wide needs with financial, labor, regulatory, and technical assistance packages and programs to promote economic development. Within the first year of the program, numerous food and beverage processing firms have been contacted and assisted in a variety of ways. Several out of state companies have also shown interest in doing business in New Jersey. It is hoped that the "target industry" program for food manufacturers will be continued and expanded beyond the initial year.

## **Issues and Problems**

Industry representatives that participated in several focus group sessions of industry leaders documented a number of issues and problems facing their industry that could be dealt with at the state level. These are presented below, in order of importance.

A major concern is in the area of **regulations**. Allegedly, the excessive and punitive enforcement of environmental regulations and excessive fines and permit fees charged by the **Department of Environmental Protection (DEP)** deter industry growth. **Permit acquisition** is expensive, due to fees, fines, and operational downtime. The process is also viewed as time consuming and inflexible. When taken together, these add up to major aggravation and significant costs for food manufacturing companies. Industry representatives viewed many permits as nuisance permits.

Industry representatives also cited other reasons at the DEP for the regulatory enforcement problems. These include the DEP's high turnover rate, lack of accountability, inflexibility in tailoring permits to specific industry circumstances, poor internal communications, and lack of knowledge of and communication with the food manufacturing industry. Furthermore, additional regulatory problems result because each level of state, county, and local bureaucracy requires its own permits, fees, and paperwork. These are often repetitive, overlapping, and inconsistent. This lack of regulatory harmonization across the various tiers of government has created a situation where the emphasis of environmental regulations is placed on enforcement and on the collection of fines and fees, rather than on the legislative intent of environmental laws and their subsequent regulations.

With regard to **air pollution control**, most of New Jersey's standards are considered more stringent than federal standards. Fines for violations in New Jersey were cited to be nearly 100 percent greater than fines in other states, and 100 times greater than such states as Delaware. Industry representatives indicated the need for improved, low-cost, technology to reduce air pollutant emissions and meet state and federal standards. Odor regulations were seen by industry representatives as poorly defined with arbitrary enforcement. The



burden of resolving air pollution problems is seen as being placed heavily on industry through such measures as the Employee Trip Reduction Program. An alternative is for it to be borne by all individuals responsible for creating the pollution (including all automobile drivers). It was suggested that making this program voluntary, as opposed to mandatory (which was recently done), will result in more equitable sharing of the burden.

Regarding **water pollution control**, industry representatives indicated that fines are automatically levied for violations without consideration of intent, magnitude, or time interval of the infraction. For example, 30-day fines are often levied for 1-day infractions. Fines are also levied by the DEP for grammatical and syntax mistakes on monthly water pollutant Discharge Monitoring Reports (DMR). The fact that water pollutant discharge levels in New Jersey are often set above those established at the national level present additional problems for certain sectors of the food manufacturing industry. Problems currently exist in the discharge of vegetable and animal oils and grease. This is a significant issue for dairy processors.

Concern was also expressed regarding the insufficiency of wastewater and sewer treatment facilities in certain regions of the state and the lack of investments in wastewater recycling technology. Industry representatives indicated a lack of state-level investments and planning for expanded sewerage capacity over the next 10 to 15 years. Some companies are required to conduct their own pretreatment of wastewater prior to local treatment facilities. This is a particular problem in such areas as northern New Jersey where adequate land near processing plants on which to build these pretreatment facilities is in short supply. Industry representatives felt that improved and lower cost technologies are needed to handle wastewater from food processing facilities in the state. They cited the need for funding to expand the use and development of membrane technology that filters out wastes from the water stream which can then be developed into marketable by-products.

Regarding **solid waste disposal** issues, industry members cited the inadequacy of landfills and incinerators and insufficient capacity to handle

food-processed waste and compost on farmland. Furthermore, permits and other restrictions limit the ability of firms to utilize innovative waste management approaches. Industry representatives felt that there was a lack of technology-based solutions for handling solid waste from food processing, and a need for providing state support for technology development, both in the private and public sector. A lack of direction from the state and available technology regarding the handling and cleaning of sludge from processed food, now that ocean dumping is no longer an option, was also cited. Industry representatives felt that the state regarded food processing waste as a problem needing regulation as opposed to a potential source of marketable by-products.

**Right-to-Know laws** were said to pose additional and unique problems for the flavors and extracts sector. A large number of ingredients are used in varying combinations and mixtures in this industry. Each batch requires extensive detailed reporting and trade secrecy agreements, even though these ingredients are all FDA approved, and are neither hazardous nor toxic in small quantities. This imposes considerable costs on the industry.

Regarding the **costs of doing business**, industry sources indicated that insurance, wages, regulatory fees, property taxes, utility taxes, and water and electricity costs are all higher in New Jersey than in most other states. In the area of taxation and fiscal issues, industry sources again cited high property and utility taxes as impediments.

Regarding **development barriers and potential**, industry representatives expressed dissatisfaction with Economic Development Authority (EDA) programs, complained about the lack of active programs for the recruitment and retention of manufacturing firms, and criticized the perceived antagonistic attitude of the state toward industry. Where state programs are offered, they are often inadequately publicized and promoted and companies have difficulty in finding out where to go for information. For example, many companies, primarily in northern New Jersey, were not aware that the NJDA provides assistance to food processors and liaises with the New Jersey Food Processors Association. Industry representatives felt

that the state does not play an adequate advocacy role for the food manufacturing industry. Except for recent inclusion in the export promotion program at the NJDA, the state has not represented processed food products at national and international trade shows.

It should be noted, however, that since the focus groups were held, the Department of Commerce and Economic Development has established a program targeted specifically for the economic development and assistance of the food and beverage processing industry. This program includes low cost financing, EDA assistance, and other custom services aimed at the retention and expansion of food processing firms already operating in the state, and the recruitment of new firms from other states.

In the area of **education, training, and labor quality**, industry members expressed concern about the lack of sufficient numbers of quality labor in the state to fill lower-skill and lower-wage positions. A poor work ethic, tardiness, irresponsibility, poor attitude, poor discipline, and poor educational backgrounds were all cited as problems of many entry-level employees. Furthermore, the training of these employees by food manufacturing companies is time-consuming and expensive, due to the high annual turnover rate of roughly 20 percent industrywide. Flavors and extract firms have additional difficulty finding trained chemical operators to fit the specific needs of their plants.

In the area of **public relations and public image**, the representatives felt that increased awareness of the importance and significance of the food industry in the state could benefit food manufacturers. The fact that the flavors and extracts industry is usually, and erroneously, associated with the chemical industry, leads to misunderstandings with the public, as well as with regulations, including Right-to-Know laws.

In the area of **transportation**, industry representatives indicated that there is excessive traffic congestion and outdated road infrastructure in the state because highway mileage has not kept pace with the increase in automobile usage. Also men-

tioned were the lack of sufficient transportation amenities between the state's cities and north to south mass transit routes. These limit the alternatives faced by employees in commuting to manufacturing facilities. Coordination is also lacking in the trucking industry, as an excessive number of trucks return empty following deliveries. The poor design of access to and from industrial parks in the state was also cited as a problem.

Since the focus group meetings were convened, several additional issues of concern to the food manufacturing industry have emerged. One is **port dredging**. The ports of New Jersey are critical to the food manufacturing industry in the state. Millions of pounds of food products and ingredients from around the world flow through these ports. Any interruptions in food and ingredient shipments into and out of the state will limit the ability of the industry to operate efficiently and competitively. The ports of Newark and Elizabeth have become so clogged with silt that they are too shallow for many of the large container ships. As a result, these ships, and the business that rely on them, are moving to other deep water ports along the East Coast. In fact, several flavors and extracts firms have already relocated south to these deeper-draft ports. Passage by New Jersey voters of the \$300 million bond act to dredge the state's ports and waterways is seen as an important step in keeping these waterways viable and competitive and for retaining businesses dependent on the state's ports.

Another issue is **energy deregulation**. Energy deregulation has been taking hold across the country with movement towards a market driven approach to electricity and gas purchase and distribution. Impending changes in the electric and gas utility industry could have significant impact on the costs, profits, and resulting viability of the food manufacturing industry in New Jersey because food manufacturing is highly energy intensive. Of concern to the industry, is the handling of fixed or "stranded" costs (investments already made by utility companies in building and financing plants and equipment). The degree to which these significant stranded costs are either assumed by

the state or passed on to utility customers will have a marked effect on the potential savings from energy deregulation. If stranded costs are primarily recovered from utility customers, the savings to the food manufacturing industry from competition may be effectively negated.

## **Recommendations**

Industry representatives recommended a wide range of public policy innovations that would improve the business climate of the New Jersey food manufacturing industry. These recommendations are directed at state government and are an indication of what industry would like to see. Among the state-level recommendations are the following:

### ***Regulatory Issues***

#### ***DEP Recommendations***

- Full input and participation of the industry in evaluation of all regulations under review that are relevant to food manufacturing;
- Relaxation of state regulatory standards, where they exceed federal levels, to coincide with federally set levels;
- Harmonization of state, regional, county, and local regulations to provide a more unified operating environment across the state;
- Development of more clearly defined air, water, and solid waste pollution problems, solutions, and standards by the state;
- Establishment of a Food Industry Ombudsman within the DEP to assist with regulatory mitigation and compliance;
- Development of Continuing Professional Education courses for DEP personnel to improve understanding of the specific and unique aspects of the food, ingredient, and flavors and extracts manufacturing industry;
- Provision of higher wages to DEP employ-

ees in an attempt to reduce high turnover and improve accountability, understanding, and communications within the DEP;

- Adoption of new job titles such as “Facilitator” within the DEP as opposed to the current titles such as “Enforcement Officer.” This is to be coupled with appropriate changes in attitude and responsibilities;
- Placement of money collected from DEP fines and fees into a general state fund rather than back into the DEP’s operating budget;
- Decentralization of the DEP and adoption of a geographical or regional organization;

### ***Permitting Process Recommendations***

- Improved publicity of the Permit Information Assistance program within the DEP (this program is designed to assist firms during permit acquisition);
- Exploration of North Carolina’s success in streamlining the permitting process and in assisting companies negotiating through regulatory red tape;
- Allowance of Jumbo Site Permits or Bubble Permits, rather than continued reliance on individual permits, and the promotion of “source” permits over that of “site” permits;
- Shortening of the entire permitting process, including a shortening of the time to complete a permit application;
- Authorization of architects and engineers to inspect buildings and issue permits;
- Allowance for greater flexibility in tailoring permits to the specific and unique requirements of a particular industry;
- Provision of experimental permits for pilot food manufacturing projects to enable quick startup times and minimize red tape;
- Revision of the payment system for permits, such that full fees be paid only upon actual issuance of a permit, rather than the

current system where two-thirds of the fee must be paid before the permit is actually issued;

- Revision and review of permitting regulations regarding the Pinelands and wetlands areas;

#### ***Air Pollution Control Recommendations***

- Reduction in the proportion of burden borne by industry regarding air pollution control coupled with an increase in responsibility to be shouldered by all polluters, primarily automobile drivers;
- Development of less arbitrary enforcement of odor regulations and the provision of exemptions from odor regulations for some food processors, as is done for some agricultural producers;
- Establishment of state air pollutant emission thresholds more in line with federal standards;
- Provision of state support to develop low-cost, improved technology to reduce air pollutant emissions from their food processing plants;

#### ***Water Pollution Control Recommendations***

- Management of water pollution reports and permits by local sewerage authorities, as is done in California, rather than centrally by state government;
- Establishment of state water pollutant discharge thresholds more in line with federal standards;
- Revision of the Clean Water Enforcement Act such that penalties are based on “per-day weighted-averages” for discharge levels over the course of a month, rather than the current use of “1-day spikes,” which are presumed to have occurred every day for one month;
- Elimination of fines for grammatical or syntax errors on monthly water pollutant Discharge Monitoring Reports (DMR);

- Provision of assistance to seafood processors in the adoption of state-of-the-art technologies for processing waste water effluent;
- Establishment of a state-wide wastewater treatment fund to spread out the cost of improving, updating, and expanding the state’s wastewater treatment and develop much needed improved wastewater technology;
- Establishment of a public/private partnership (government/industry/university) to develop improved, low cost, wastewater recovery technology (e.g., membranes) to “mine” the waste stream and develop marketable by-products while reducing water pollution;
- Provision of state assistance to companies that are required to construct pretreatment facilities near their plant where land is in limited supply;

#### ***Solid Waste Disposal Recommendations***

- Establishment of a public/private partnership to develop methods for disposing of nontoxic wastes and by-products from food processing;
- Reexamination of guidelines for handling and reporting medical waste generated in manufacturing plants;
- Development of long-range planning and R&D by the state, industry, and universities, to handle and clean solid waste and sludge from processed foods with landfills, incinerators, composting, and land application;
- Redefinition of food processing waste (solid, water, and sludge) in terms of by-products, thereby reducing the volume entering the waste stream while developing marketable products;
- Provision of state-level incentives to private and public sectors to “mine” the waste stream and develop waste reclamation and

recycling technology and marketable by-products;

- Formation of public/private partnerships to build pilot plant facilities to focus on developing and commercializing technical solutions to waste problems in food manufacturing;

#### ***Right-to-Know Laws Recommendations***

- Revision of the Right-to-Know law to allow for exemptions or modifications due to the unique situations presented by the flavors and extracts industry;

#### ***Taxation and Fiscal Issues Recommendations***

- Consolidation and regionalization of school districts and other services where home rule imposes redundancy and leads to excessive costs;
- Development of tax incentives for manufacturers to improve on-the-job training;

#### ***Development Barriers and Potential Recommendations***

- Provision of loan guarantees to small businesses and small expansion projects;
- Development of incentives to encourage research and development, new businesses, and venture capital projects;
- Provision by the state of low-cost loan programs, improved promotion of the food industry, extension of existing economic development programs, and the continuation of the “target industry” program;
- Formation of an industrial development agency, in cooperation with industry, to advocate for industry in general, and food industries in specific;
- Priority be given by state institutions to food produced or processed in New Jersey, where it is available, as a substitute for imported food, in order to promote the use of New Jersey products and support the state’s

commerce;

- Adoption by the state of a more customer/client-oriented approach towards working with industry;
- Improved promotion and publication of state programs and services available to industry including those offered by NJDA and DCED;
- Development of a state program resource book listing the various programs and services available to industry along with state personnel contacts;
- Representation of New Jersey’s manufactured food products by state personnel at national and international trade shows;

#### ***Costs of Doing Business Recommendations***

- Support of efforts in Washington, D.C., to reduce tariffs on American goods in foreign countries;
- Establishment of a summit conference between the food manufacturing and insurance industries and an examination of utility costs and taxes;

#### ***Education, Training, and Labor Quality Recommendations***

- Formation of a partnership between the education system and industry to improve educational standards and better meet the employment needs of the state’s businesses;
- Support for on-the-job training, apprenticeships, and vocational programs through tax incentives and supplemental state funding allocations to food manufacturing firms;
- Development of a Chemical Operator Certificate Training Program for the flavors and extracts industry at the vocational and/or post-high school level;
- Establishment of a government sponsored task force between New Jersey Departments of Labor, Education, and Commerce and Economic Development and industry

to jointly train employees for the state's workforce of today and tomorrow;

- Utilization of such state-industry funded pilot plants as the CAFT/FMT facility at Rutgers University to train chemical operators, technicians, and other food processing personnel;

### ***Public Relations and Image Recommendations***

- Promotion by the state of the importance of the food industry to New Jersey's economy, along with improved publication of employment and business opportunities in the industry;
- Development of a public relations campaign for the flavors and extracts industry to educate the public about the benefits and value provided by their industry, and to differentiate it from chemical manufacturers of more toxic and hazardous products;

### ***Transportation Recommendations***

- Expansion of public transportation services to provide improved access for the state's largely city-based labor force to manufacturing facilities located in cities, the Meadowlands, and the western counties;
- Improved access to industrial parks;
- Improved coordination of the trucking industry to reduce the number of trucks returning empty after making out-of-state deliveries;
- Construction of a train route to Newark Airport;

### ***Other Issues Recommendations***

- Commencement of dredging the Port of Newark/Elizabeth and approaching waterways as soon as possible to stem the tide of firms moving out of state to more southerly, deep water draft ports;
- Deregulation of energy utilities to provide effective competitive access to electric and

gas markets as soon as practical; and

- Management of "stranded" utility costs such that savings to the food manufacturing in-

# I. Introduction

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## A. Background

The food manufacturing industry comprises food, confectionery, beverage, ingredients, flavors, and extracts manufacturers. This industry occupies a central place not only in New Jersey's agriculture and food production and distribution complex, but also in the state's manufacturing sector (Adelaja, 1988).<sup>1,2</sup> In 1992, the food manufacturing industry in New Jersey contributed more than \$9.6 billion in value of shipments (gross sales), more than \$4.5 billion in value added, and more than \$1 billion in wages paid to approximately 34,000 production and nonproduction workers.<sup>3</sup> The large size of the typical food manufacturing outfit, the magnitude of related businesses (shipping/transportation, refrigeration, retail trade, wholesale trade, etc.), the significant amount of capital committed to these enterprises, and the fact that such capital is not as fungible as capital committed to most service and retail-type businesses make this industry a critical one for policy makers interested in stabilizing the employment base. Food manufacturing is less environmentally threatening than many other manufacturing activities such as chemi-

cals, petroleum, and metals, and thus may be an attractive candidate to target for economic development.

Food manufacturing is also important to consumers and to the welfare of the citizenry. This segment of the economy is responsible for the form conversion of most raw agricultural products and foods into the highly sophisticated food, confectionery, beverage, ingredient, flavor, and extract products that today's consumers need and want. Consumers' food preferences have changed significantly over the years due to rising incomes, changing tastes, and increasing awareness. These changes, coupled with a growing population, changing demographics, and changes in the logistics of food distribution, have heightened the demand for processed food over the years. Consumers today are demanding greater quality, variety, nutrition, convenience, and value than in the past. Increasingly, customers are chasing convenience, health, and non-fat foods and are consuming greater proportions of their foods away from home. Without the food processing industry, consumers would not have much of the satisfaction enjoyed from food consumption today.

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<sup>1</sup> According to Connor et. al. (1985), Marion (1986), and Connor (1988), the importance of food manufacturing activities to the economy is a national phenomenon. Consumers must eat and much of the food consumed today requires some form of processing.

<sup>2</sup> New Jersey's agriculture and food complex comprises production agriculture, commercial marine fisheries and aquaculture, food manufacturing (food, flavors and extracts, and beverage processing), food wholesale (wholesale and brokerage), food retail stores (supermarkets, grocery, and other food stores), food service establishments (restaurants, fast food, and other eating and drinking places), and other miscellaneous activities related to these industries.

<sup>3</sup> These are the most recent figures available and are obtained from the 1992 Census of Manufacturers-New Jersey.

Despite the prospects for growth in food processing in general, over the past 25 years, New Jersey's food manufacturing industry as a whole has experienced significant decline. This decline has been not only in absolute terms, but also relative to the Northeast region and to the nation.<sup>4</sup> The number of establishments and total employment in food manufacturing in New Jersey have decreased significantly over this time period. Although nominal sales, nominal value added, and nominal payroll have grown, when corrected for inflation, the direction of change is either downward or fairly stagnant at best. In almost every respect, the size of the food manufacturing industry has shrunk relative to the other components of New Jersey's food industry, such as food service and food retail.<sup>5</sup>

Further evidence of the decline of the industry can be seen from the decreasing contributions of New Jersey's food processing industry to northeastern and national food manufacturing employment, value added, number of establishments, gross sales, and payroll. Between 1967 and 1992, New Jersey's shares of national food processing employment, production, and value added each fell by at least one-third. While the food processing industry as a whole in the northeastern region has experienced a decline relative to the nation, this decline has been even more severe in New Jersey.

The decline of the food manufacturing industry has become an even greater concern in New Jersey in recent years. With the economy of New Jersey being more adversely

impacted by the recent recessions than most other states, state policy makers have been increasingly concerned about methods by which these trends can be reversed. Of importance to policy makers is information about ways to reverse the decline in the industry and to stem the flight of food manufacturing firms. Also important is information on ways to strengthen the state's food manufacturing industry so that it is poised to be more viable and sustainable into the 21st century.

Lopez and Henderson (1988) provided preliminary insights into the reasons for the decline of New Jersey's food manufacturing industry. Their study identified key determinants of food processing business location decisions (e.g., environmental regulations and fiscal policies, such as tax and development incentives) and the key impediments faced by the industry in New Jersey.<sup>6,7</sup> Preliminary discussions with industry representatives suggest that the food processing industry has been quite concerned by what they term the "overregulation of the industry," the "non-conduciveness of the business climate," and the lack of the types of economic development incentives that exist in such other states as North Carolina. These suggest that a new policy paradigm might be in order in the state and that a private sector/government initiative might be required to stem the tide of economic decline faced by the industry.

It should be noted here that while the food manufacturing industry as a whole has seen significant declines, certain segments of this

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<sup>4</sup> The Northeast is defined to include New Jersey, New York, Pennsylvania, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

<sup>5</sup> This is consistent with trends in all types of manufacturing regionally and nationally. Manufacturing, in general, has been on the decline relative to wholesale, service, and retail trades.

<sup>6</sup> Lopez and Henderson indicate that key determinants of location include availability of farm, fish, and other raw materials and supplies; availability of wastewater and solid waste disposal facilities; water availability; labor supply; and availability of markets.

<sup>7</sup> Key impediments identified include high cost of doing business and overregulation.



industry have performed better than others. The manufacturing of flavors and extracts has been a growing sector in New Jersey (although the number of firms declined from 1967 to 1992), and should be recognized for its importance to the state's economy. This sector relies heavily on the use of advanced technology and food science research, which are unique strengths that New Jersey offers, to manufacture highly value-added products. More specific descriptions, economic analyses, and trends of each sector of the food manufacturing industry are presented in later sections of this report.

The agriculture and food complex in New Jersey is a large sector of the state's economy. It directly contributed some 12 percent of the total sales generated in New Jersey's economy in 1987 and perhaps as much as 25 percent when indirect and induced economic effects, as well as ancillary activities such as transportation, refrigeration, and insurance services, are considered (Adelaja, Schilling, and Horzepa, 1994).

Because New Jersey was more adversely impacted by the 1989 to 1993 recessions than many other states, state policy makers have heightened their interest in methods to enhance the economic vitality of the state. Out of concern for the long-term health and economic viability of New Jersey's agriculture and food complex, the New Jersey Department of Agriculture (NJDA) is developing, with other state agencies, an economic development initiative to assist the state's food industry.<sup>8</sup> Towards this end, in 1994, the NJDA contracted with Dr. Adelaja of Rutgers University to study the importance and contributions of all components of the food industry to the state's economy, the long-term

trends in each of the sectors of the industry and their implications for economic development, the critical problems faced by each sector that could be dealt with at the state level (particularly those detracting from the ability of New Jersey firms to compete with firms in other states), and the potential methods for improving the state's business climate through public policy.<sup>9</sup>

As part of the study, the research team compiled a number of key current and historical statistics on each of the food industry sectors. These statistics allowed for the analysis and evaluation of the status and condition of each of these industry sectors, as well as the contributions made to the state. Realizing, however, that an effective way of documenting the problems of each industry was to solicit information directly from the industry, the study team decided also to convene focus groups comprising leaders and representatives from each industry sector. Several focus groups, each representing a homogeneous group of industry representatives, were subsequently held between January and March of 1995. Thus, the study conducted for each industry included the analysis of secondary data, as well as the examination of information obtained from industry sources.

The food manufacturing industry in New Jersey is the focus of this particular report. This report examines the importance of the food manufacturing industry in the state and analyzes trends. In addition, it discusses the critical problems faced by the industry that could be dealt with at the state level and provides recommendations proposed by industry representatives on how to improve the business climate. Statistics and figures presented in this report were primarily obtained

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<sup>8</sup> The New Jersey Department of Commerce and Economic Development (Division of Economic Development and the Economic Development Authority) is the primary development-related agency in the state. However, the NJDA also has programs related to the economic development of the food industry.

<sup>9</sup> The food industry sectors included in this study are: food manufacturing, food wholesale, food retail stores, and food service establishments.

from the Census of Manufacturers (various census years from 1967 to 1992) published by the U.S. Department of Commerce. The 1992 figures are the most recent Census data available on the manufacturing industry since this census is only conducted every five years and is typically not published until three to four years later. Another source of similar data is the Annual Survey of Manufacturers. However, the decision was made to use Census figures in order to maintain consistency with food wholesale, retail, and service industries for which only Census figures exist.

Segments of this report dealing with problems faced by the industry and recommendations for improving the industry's business climate were primarily obtained from the industry representatives at the focus group meetings. Due to the diversity of the industry, three homogeneous focus groups were convened to represent New Jersey's food manufacturers. Two of these groups were delineated geographically into northern New Jersey and southern New Jersey food processors, and the third focus group comprised representatives from the food ingredients, flavors, and extracts manufacturing industry.

## **B. Definition and Nature of the Food Manufacturing Industry**

The food manufacturing industry can be defined as the sector of the economy that combines agricultural, seafood, natural, synthetic, or chemical products with various forms of management, capital, and labor in the production and processing of value-added food, confectionery, and beverage products, food ingredients, food flavors and extracts, and other edibles that are more consistent with consumer food and refreshment needs through such processes as cooking, pasteurization, drying, freezing, packaging, bottling, canning, preserving, and other processes involving the denaturing of basic food items (Adelaja 1988).

The majority of food manufacturing activities are covered under U.S. Standard Industrial Classification (SIC) code 20 and comprise sectors primarily engaged in the manufacturing or processing of the following products:

- **Meat products (SIC 201)**, including packed meat, sausages, prepared meats, dressed poultry, and processed poultry/egg.
- **Dairy products (SIC 202)**, including butter, cheese, dry, and evaporated dairy products, condensed dairy products, ice cream, frozen desserts, and fluid milk.
- **Preserved fruits and vegetables (SIC 203)**, including canned specialties, frozen specialties, canned fruits and vegetables, frozen fruits and vegetables, dehydrated fruits and vegetables, dehydrated soups, pickles, sauces, and salad dressings.
- **Grain mill products (SIC 204)**, including cereals, animal/pet food, and prepared feed.
- **Bakery products (SIC 205)**, including bread, cake, cookies, crackers, and frozen bakery products.
- **Sugar and confectionery products (SIC 206)**, including raw cane sugar, refined cane sugar, beet sugar, candy, other confectionery products, chewing gum, chocolate and cocoa products, and salted and roasted nuts and seeds.
- **Fats and oil products (SIC 207)**, including cottonseed oil, soybean oil, vegetable oil, animal and marine fats/oils, shortening, edible fats and oils, and cooking oils.
- **Beverages (SIC 208)**, including malt beverages, malt, wines, brandy, brandy spirits, distilled and blended liquors, bottled and canned soft drinks, and flavoring extracts and syrups.

- **Miscellaneous food and kindred products (SIC 209)**, including canned and cured fish and seafood, fresh or frozen prepared fish, packaged fish, roasted coffee, potato chips and similar snacks, manufactured ice, macaroni and spaghetti, and other food preparations.

The food ingredients and flavors and extracts sector is an important and growing component of food manufacturing in New Jersey. However, providing a clear picture of this sector in the state is difficult because the products which make up this industry are divided among several SIC categories. The majority of products are classified under SIC 20, discussed above, which includes the manufacturing and processing of foods and beverages. Flavors and extracts are primarily reported under SIC 2087, Flavoring Extracts and Flavoring Syrups, Not Elsewhere Classified, which is a sub-sector of Beverages (SIC 208). This category includes flavoring extracts, syrups, powders, and related products for soda fountain use or for the manufacture of soft drinks, and colors for bakers' and confectioners' use. Establishments primarily engaged in manufacturing chocolate syrup are classified in Chocolate and Cocoa Products (SIC 2066) which is a sub-category of Sugar and Confectionery products (SIC 206).

Additional portions of the flavors and extracts sector, however, are classified under Chemicals and Allied Products (SIC 28). More specifically, a number of products are listed under Industrial Organic Chemicals, Not Elsewhere Classified (SIC 2869) which includes synthetic sweeteners and flavoring materials such as sorbitol, saccharin, and synthetic vanillin, along with a range of numerous non-food chemicals. Furthermore, the manufacturing of essential oils is classified under Chemicals and Chemical Preparations, Not Elsewhere Classified (SIC 2899), which, in addition to these food ingredients, also includes a wide array of non-food products.

The problem in combining the numbers from these various categories to arise at an industry total for New Jersey stems from the fact that numbers on this sector are reported at the fourth and fifth digit SIC code level. Industry statistics at this level are not readily available at the state-level and are provided only at the national-level for much of this sector. It is, therefore, extremely difficult to separate out the food ingredients, flavors, and extracts products from other food and non-food products lumped together under the fourth- and fifth-digit level SIC categories indicated above at the state level for New Jersey.

Furthermore, since the flavors and extracts industry is comprised of a relatively small number of firms (27 establishments and between 500 and 999 employees classified under SIC 2087 in 1992), much of the statistics for this sector are withheld to avoid disclosing data for individual companies. Therefore, for the purposes of this report, the flavors and extracts sector of New Jersey's food manufacturing industry will primarily be represented under the Beverages classification of SIC 208.

The activities and products identified above and the companies and firms that produce them are important to New Jersey's economic development, growth, and job retention. Food manufacturing firms tend to be very large. Consequently, they tend to employ a large number of production and non-production workers. The industry also tends to be highly capital-intensive. The significant fixity of capital in manufacturing, compared with the retail and food service sectors, and its nonfungibility make it more difficult for food manufacturers to relocate to other states. Such capital fixity has probably slowed down the loss of manufacturers and may have provided a greater degree of stability than would have been expected given the business climate. Food manufacturing is also a high-productivity industry. Consequently, its large workforce, comprising both production and

nonproduction workers, generally receives relatively high wages vis-a-vis most other manufacturing and food-related businesses.

New Jersey is home to many of the national and international food manufacturing companies and conglomerates. RJR Nabisco, General Foods, M&M Mars, Continental Baking, Best Foods/CPC International, Goya, Campbell Soup, National Starch, International Flavors and Fragrances, General Spice, Takasago International, Lea and Perrins, Progresso, Redpack, Crown Cork & Seal, Ocean Spray, Thomas J. Lipton, and Firmenich are only a few of the large companies with processing, packing, research, development, or management/corporate offices in New Jersey. New Jersey is also home to many smaller regional companies, such as Welsh Farms, Gorton's Seafood, Celentano Brothers, Ron-Son Mushrooms, Tuscan Dairies, Violet Packing, Manischewitz, Four Sisters Winery, Al & John's, Lombardo Ravioli, and Cumberland Dairy. According to industry sources, 35 of the top 100 food companies in the United States are within a 60-mile radius of the central New Jersey/New Brunswick area. New Jersey is noted as one of the leading states in the production of flavors, extracts, and syrups, macaroni and spaghetti, coffee roasting, cookies, and canned soup, among other things.

A strong and noticeable trend in the state is that toward secondary processing.<sup>10</sup> This has resulted in growth in imported preprocessed products and movement away from primary processing.<sup>11</sup> Connors (1988) points out that such a trend is not surprising because of the proximity of the state to ports and large consumer bases (Lopez and Henderson, 1988). Northern New Jersey tends to have a greater concentration of national companies,

secondary processors, and conglomerates while the southern portion of the state has tended to have a greater concentration of primary processors. The prevalence of primary processing in southern New Jersey (e.g., Ocean Spray, Gorton's Seafood, Cumberland Dairy, Violet Packing) is related to the greater availability of agricultural products and similar raw materials. Historically, New Jersey was particularly attractive to seafood processors due again to proximity to consumers and the availability of fish products. Recently, however, New Jersey, as well as the Mid-Atlantic region, have lost numerous seafood processing facilities.

New Jersey and its neighboring states have been particularly attractive to flavors, extracts, and ingredients manufacturers. This is an important sector in New Jersey, as flavors and extracts are one of the few segments of food manufacturing that has been growing in terms of its value of shipments. Among those manufacturers based in the state are Firmenich, International Flavors and Fragrances, Haarmann and Reimer, General Spice, Takasago International, and National Starch. Industry sources indicate that about 65 percent of flavors, extracts, and ingredients manufacturers in the United States are located in New Jersey and that at least 80 percent of them are within 100 miles of the central portion of the state. The attraction that New Jersey offers this segment of the industry includes a large pool of highly skilled technical labor and scientists (crucial to this industry); the advanced technology centers; proximity to ports; and a high regional concentration of food processors that use these ingredients.

In terms of the distribution of food processing activity by region of the state, Exhibit

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<sup>10</sup> Secondary processing is the processing of preprocessed food, such as spaghetti sauce from tomato paste.

<sup>11</sup> Primary processing is the basic conversion or processing of raw agricultural commodities, such as the processing of tomato paste from tomatoes.

1 shows that the northern counties of Essex, Bergen, Hudson, and Passaic have the greatest number of establishments. Essex County leads in number of establishments, gross sales (value of shipments), and value added, and is the second ranked county in number of employees. Bergen County has the greatest number of employees in food processing, ranks second in number of establishments and value of shipments, and is fourth in value added. Following Essex and Bergen are the northern counties of Hudson (third in establishments, eighth in employees, seventh in gross sales, and sixth in value added), Passaic (fourth in establishments, seventh in employees and value added, and ninth in gross sales), and Union (seventh in establishments, fifth in employees, sixth in gross sales, and tenth in value added). Also important is the central county of Middlesex (fifth in establishments, third in employees and value added, and fourth in gross sales) and the southern county of Camden (also fifth in establishments, gross sales, and value added, and fourth in employees). It is evident that the food processing firms in Hunterdon manufacture highly valued products as this county ranks second in value added and third in gross sales, even though it only ranks thirteenth in establishments and ninth in employees. Cumberland, Monmouth, Mercer, Morris, Gloucester, and Burlington counties all have a considerable food processing presence, while Atlantic, Cape May, Ocean, Salem, Somerset, Sussex, and Warren have less presence.

According to Lopez and Henderson (1988), New Jersey's food manufacturing industry shows a much higher degree of diversification than other states. Not only is the state's product mix very diverse, but a large number of companies based in New Jersey have a diversified product line. There has been a trend nationwide toward intracompany diversification aimed at improving earnings stability. Much of this diversification was achieved via merger and acquisition activi-

ties. Food firms have been prime targets in mergers, due to the income stability they offer companies in other areas. This was particularly true in the 1980s when a large number of processors were acquired.

New Jersey's food processors are also extensively involved in export and import activities. International trade is an area of growing importance. Nationwide, food manufacturers are becoming increasingly involved in exports, while import activities of foreign firms is also growing. Foreign direct investment in the United States is also growing, and New Jersey is a prime candidate for foreign business location if its business climate is competitive.

Among the attractive features of the state to food manufacturers is New Jersey's proximity to ports and other export facilities. These facilitate imports of materials and exports of finished products. Another advantage lies in the fact that New Jersey has a well-educated labor force suitable for upper level jobs. Skilled, scientific, and technical labor, which are very important in food processing, are readily available in New Jersey. Research and development (R&D) expertise in food science and manufacturing assistance provided by the Center for Advanced Food Technology (CAFT) and its Food Manufacturing Technology (FMT) facility at Rutgers University are additional benefits provided to food firms operating in New Jersey. Another advantage is the proximity to a large urban and consumer base, which enhances market access of products manufactured in New Jersey. Proximity to the financial and commercial centers of New York City and Philadelphia; proximity to and availability of raw inputs locally, as well as from Pennsylvania, Delaware, New York, and Connecticut; high quality of life; diversity of lifestyles; and the state's industrial history/reputation are among the other advantages New Jersey has to offer. These can be built upon in developing a solid foundation for the future.

**Exhibit 1: Distribution of Food Manufacturing Activity Across New Jersey's Counties in 1992.**

County	Number of Establishments	Rank	Number of Employees	Rank	Value of Shipments (\$ million)	Rank	Value Added (\$ million)	Rank
Atlantic	N/A <sup>d</sup>	—	N/A	—	N/A	—	N/A	—
Bergen	83	2	4100	1	1043.1	2	431.3	4
Burlington	11	14	800	11	518.3	10	292.7	8
Camden	40	5	3400	4	875.6	5	385.7	5
Cape May	N/A	—	N/A	—	N/A	—	N/A	—
Cumberland <sup>a</sup>	28	8	2900	6	660.0	8	287.5	9
Essex	84	1	3700	2	1292.0	1	703.4	1
Gloucester	17	11	1000	10	182.9	11	56.8	12
Hudson <sup>b</sup>	51	3	2200	8	680.5	7	349.8	6
Hunterdon	14	13	1800	9	985.1	3	469.5	2
Mercer <sup>c</sup>	21	10	800	11	172.9	12	66.6	11
Middlesex	40	5	3500	3	973.8	4	450.3	3
Monmouth	23	9	800	11	141.0	13	45.0	13
Morris	17	11	500-999	14	N/A	—	N/A	—
Ocean	N/A	—	N/A	—	N/A	—	N/A	—
Passaic	49	4	2500	7	614.0	9	294.2	7
Salem	N/A	—	N/A	—	N/A	—	N/A	—
Somerset	N/A	—	N/A	—	N/A	—	N/A	—
Sussex	N/A	—	N/A	—	N/A	—	N/A	—
Union	39	7	3000	5	706.8	6	246.4	10
Warren	4	15	500-999	14	N/A	—	N/A	—

<sup>a</sup>Figures reported are for the Vineland-Millville-Bridgeton metropolitan statistical area.

<sup>b</sup>Figures reported are for the Jersey City metropolitan statistical area.

<sup>c</sup>Figures reported are for the Trenton metropolitan statistical area.

<sup>d</sup>N/A represents data Not Available since the data was withheld to avoid disclosing data for individual companies. Data are included in higher level totals in the following Exhibits.

Source: New Jersey Census of Manufacturers, 1992.

## II. Industry Size, Contributions, and Trends

### A. Industry Size and Economic Contributions

The food manufacturing industry is a large contributor to the New Jersey economy and a major component of the state's \$86.8 billion manufacturing industry. In 1992, food manufacturing in New Jersey contributed

more than \$9.6 billion to the state's economy, while providing employment to 33,500 production and nonproduction workers. Exhibit 2 illustrates the size of the food manufacturing industry in New Jersey vis-a-vis the state's aggregate manufacturing industry. As shown in this table, food manufacturing accounted for 4 percent of the number of establishments;

**Exhibit 2: Size and Contribution of Food Manufacturing to Total Manufacturing Activities in New Jersey in 1992.**

Indicator	Total for New Jersey's Food Manufacturing Industry	Total for All New Jersey Manufacturing Industries	Percentage of Total Attributable to Food Manufacturing
Number of Establishments	567	13,277	4.27
Total Employment	33,500	573,900	5.84
Total Payroll (\$ million)	1,023.70	20,613.20	4.97
Production Worker			
Employment	24,000	302,300	7.94
Production Worker Employment Hours (million hrs.)	48.60	6,163.30	7.89
Production Worker Wages (\$ million)	632.80	7,675.50	8.25
Value Added (\$ million)	4,515.60	46,045.30	9.81
Cost of Materials (\$ million)	5,135.00	40,457.40	12.69
Value of Shipments (\$ million)	9,645.30	86,774.50	11.12
New Capital Expenditures (\$ million)	230.50	2,716.90	8.48

Source: New Jersey Census of Manufacturers, 1992.

6 percent of total employment; 5 percent of total payroll; 8 percent of production worker employment, employment hours, and payroll; 10 percent of value added; 13 percent of the cost of materials used; 11 percent of the value of shipments; and 7 percent of new capital expenditures in the manufacturing segment of New Jersey's economy in 1992.

Exhibit 3 illustrates that among the major manufacturing industries in New Jersey, food manufacturing ranks second behind manufacturers of chemical and allied products in terms of value added and total value of manufacturing shipments. Food manufacturing accounts for nearly 10 percent of value added and more than 11 percent of the value of shipments in 1992. Food manufacturing, however, ranks fifth, eighth, and ninth, respectively, in employment, payroll, and establishments within the state's manufacturing sector. Based upon economic and employment contributions, it is apparent that among the manufacturing industries, which represent the backbone of New Jersey's economy, food manufacturing is of considerable importance from an economic development standpoint.

Food manufacturing is also a major component of the state's entire food industry. As shown in Exhibit 4, of New Jersey's food industry, food manufacturing accounts for 11 percent of employment, 20 percent of annual payroll, and 18 percent of sales volume. Furthermore, food manufacturing is a source of relatively high-paying jobs in the state's food industry and economy. As illustrated by Figure 1, the average annual salary for New Jersey's food manufacturing employees was \$30,558 in 1992, second in the state's food industry to food wholesale employees at \$33,400. In contrast, food retail and service activities offered markedly lower average annual salaries of \$15,020 and \$9,970, respectively. While the food retail and food service industries offer substantial employment opportunities to low-skilled and entry-level people, the food manufacturing industry fills an important niche in the employment spec-

trum by providing middle-income jobs.

Exhibit 5 provides a breakdown of New Jersey's food manufacturing establishments, employment, annual payroll, value of shipments, value added, and cost of materials by each subsector of the industry. Exhibit 5 enables analysis of the relative importance of the various sectors of the food manufacturing industry. Firms engaged in processing bakery products represent one of the largest sectors of the industry, with 26 percent of establishments operating in the state, 22 percent of total employment, and 20 percent of total payroll. However, this sector ranks third in value added, fourth in total value of shipments, and sixth in cost of materials used. Beverage manufacturing (which includes flavors and extracts) is another leading sector, with 23 percent of total value of shipments, 27 percent of total value added, 20 percent of annual payroll, 19 percent of the total cost of materials, and 15 percent of employees in the food manufacturing industry. Canned and frozen foods ranked second in value of shipments and value added and ranked third in payroll and cost of materials. Dairy products, which led in cost of materials, ranked third in value of shipments, fourth in payroll, and fifth in value added. Figure 2 provides a breakdown of the food manufacturing industry based on the percentage of gross sales generated by each sector.

## **B. Trends in New Jersey's Food Manufacturing Industry (1967-1992)**

New Jersey's food manufacturing industry has experienced a steady and significant decline in recent decades. By summarizing the changes experienced in the industry over the 25 years between 1967 and 1992 in terms of number of establishments, employment, value of shipments, annual payroll, and value added, Exhibit 6 illustrates the condition of New Jersey's food manufacturing industry.



### Exhibit 3: Sizes and Contributions of New Jersey's Manufacturing Industries in 1992.

Manufacturing Sector	Establishments (number)	Value of Shipments (\$ million)	Annual Payroll (\$ million)	Employment (number)	Value Added (\$ million)
<b>Food and Kindred Products</b>	<b>567 (4.2%)</b>	<b>9,645.3 (11.1%)</b>	<b>1,023.7 (5.0%)</b>	<b>33,500 (5.8%)</b>	<b>4,515.6 (9.8%)</b>
Tobacco	2 (0.02%)	N/A	N/A	N/A	N/A
Textile Mill Products	333 (2.5%)	1,151.3 (1.3%)	296.2 (1.4%)	12,000 (2.1%)	587.8 (1.3%)
Apparel and Other Textile Products	1,196 (9.0%)	3,119.0 (3.6%)	639.9 (3.1%)	35,100 (6.1%)	1,492.9 (3.3%)
Lumber and Wood Products	319 (2.4%)	369.1 (0.4%)	87.8 (0.4%)	3,600 (0.6%)	167.8 (0.4%)
Furniture and Fixtures	326 (2.5%)	761.7 (0.8%)	183.9 (0.9%)	7,100 (1.2%)	410.4 (0.9%)
Paper and Allied Products	309 (2.3%)	3,355.2 (3.9%)	692.6 (3.4%)	21,500 (3.8%)	1,555.6 (3.4%)
Printing and Publishing	2,451 (18.5%)	6,726.1 (7.8%)	1,786.3 (8.7%)	57,200 (10.0%)	4,833.7 (10.5%)
Chemicals and Allied Products	807 (6.1%)	24,256.3 (28.0%)	2,842.3 (13.8%)	68,900 (12.0%)	15,511.9 (33.7%)
Petroleum and Coal Products	69 (0.15%)	5,589.9 (6.4%)	205.2 (1.0%)	4,400 (0.8%)	534.4 (1.2%)
Rubber and Miscellaneous Plastics Products	687 (5.2%)	3,970.4 (4.6%)	874.7 (4.2%)	32,600 (5.7%)	2,022.3 (4.4%)
Leather and Leather Products	72 (0.5%)	N/A	N/A	1,000-2,499 (—)	N/A
Stone, Clay, and Glass Products	404 (3.0%)	1,886.8 (2.2%)	492.3 (2.4%)	16,600 (2.9%)	1,123.7 (2.4%)
Primary Metal Industries	201 (1.5%)	2,890.1 (3.3%)	408.7 (2.0%)	12,400 (2.2%)	1,086.2 (2.4%)
Fabricated Metal Products	1,255 (9.5%)	4,500.8 (5.2%)	1,153.2 (5.6%)	37,400 (6.5%)	2,315.4 (5.0%)
Industrial Machinery and Equipment	1,715 (12.9%)	4,599.7 (5.3%)	1,260.5 (6.1%)	36,800 (6.4%)	2,356.3 (5.1%)
Electronic and Other Electric Equipment	707 (5.3%)	4,294.8 (5.0%)	1,010.5 (4.9%)	33,600 (5.9%)	2,464.0 (5.4%)
Transportation Equipment	213 (1.6%)	1,928.6 (2.2%)	319.8 (1.6%)	8,700 (1.5%)	784.2 (1.7%)
Instruments and Related Products	518 (3.9%)	5,709.1 (6.6%)	1,604.6 (7.8%)	38,900 (6.8%)	3,408.8 (7.4%)
Miscellaneous Manufacturing Industries	567 (4.3%)	1,726.2 (2.0%)	386.3 (1.9%)	15,700 (2.7%)	915.1 (2.0%)
Auxiliaries	559 (4.2%)	—	5,282.4 (25.6%)	95,300 (16.6%)	—
<b>All Manufacturing Sectors</b>	<b>13,277 (100%)</b>	<b>86,774.5 (100%)</b>	<b>20,613.2 (100%)</b>	<b>573,900 (100%)</b>	<b>46,045.3 (100%)</b>

Source: New Jersey Census of Manufacturers, 1992.

**Exhibit 4: Comparison of New Jersey's Major Food Industries in 1992.**

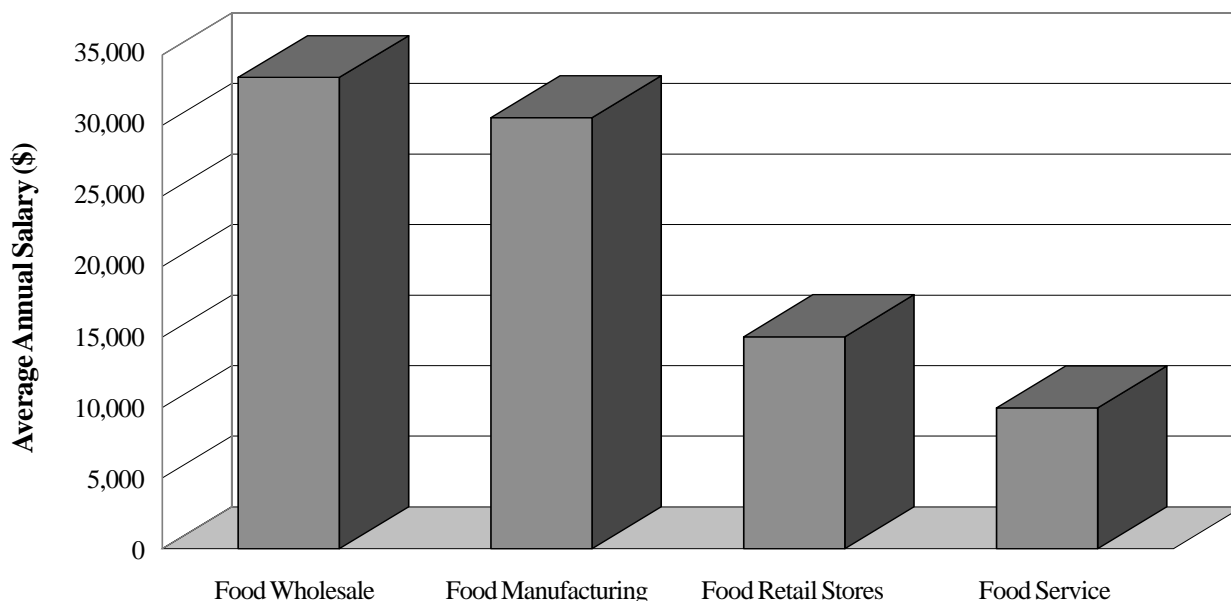
Industry	Establishments	Employment	Payroll (\$ million)	Gross Sales (\$ million)
<b>Food Manufacturing</b>	<b>567</b> (2.5%)	<b>33,500</b> (10.7%)	<b>1,023.7</b> (20.4%)	<b>9645.3</b> (17.7%)
Food Wholesale	1,939 (8.7%)	30,134 (9.6%)	1,006.8 (20.1%)	26,339.5 (48.2%)
Food Retail	6,364 (28.6%)	97,578 (31.1%)	1,465.5 (29.2%)	13,044.4 (23.9%)
Food Service	13,380 (60.1%)	152,192 (48.6%)	1,517.6 (30.3%)	5,590.8 (10.2%)
<b>Total Food Industries</b>	<b>22,250</b>	<b>313,404</b>	<b>5,013.6</b>	<b>54,620.0</b>

Source: New Jersey Census of Manufacturers, 1992; New Jersey Census of Retail Trade, 1992; New Jersey Census of Wholesale Trade, 1992.

Examination of Exhibit 6 shows that the number of food manufacturing firms has clearly been declining in New Jersey. Between 1967 and 1992, the number of food manufacturing establishments dropped by more than 40 percent, reflecting the difficulties encoun-

tered by food manufacturers operating in the state. Similarly, employment in the industry fell from 60,500 in 1967 to 33,500 in 1992, a decline of nearly 45 percent. Despite the 143 percent increase in aggregate annual nominal payroll earned by employees in the indus-

**Figure 1: Average Annual Salaries in New Jersey's Food Industries in 1992.**



Source: New Jersey Census of Manufacturers, 1992; New Jersey Census of Retail Trade, 1992; New Jersey Census of Wholesale Trade, 1992.

**Exhibit 5: Distribution of Establishments, Employment, Payroll, Value of Shipments, Value Added, and Cost of Materials in New Jersey's Food Manufacturing Industry in 1992.**

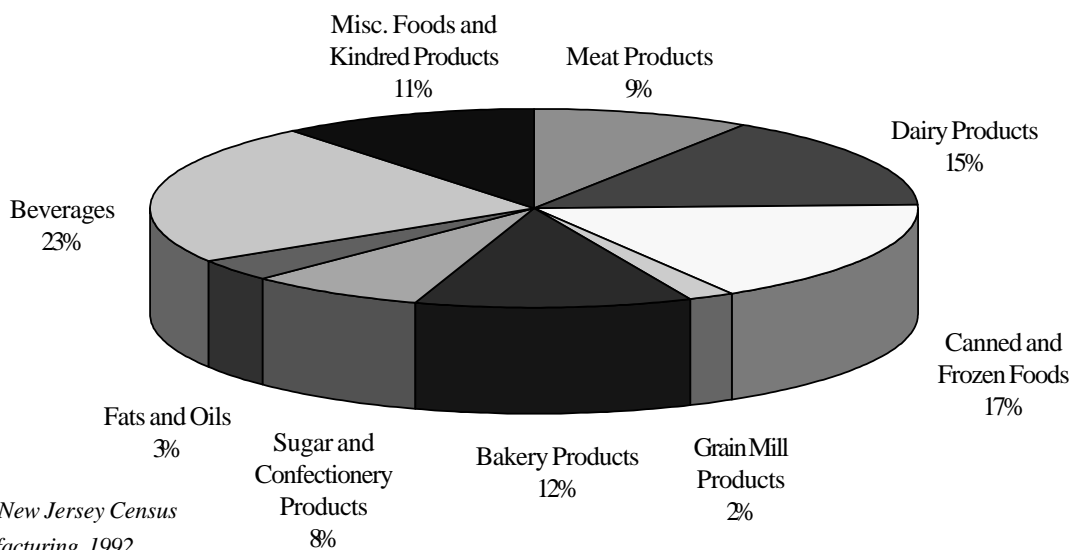
Sector	Establishments (number)	Paid Employees (number)	Annual Payroll	Value of Shipments	Value Added	Cost of Materials
				(\$ million)		
<b>Food &amp; Kindred Products</b>	<b>567</b>	<b>33,500</b>	<b>1,023.7</b>	<b>9,645.3</b>	<b>4,515.6</b>	<b>5,135.0</b>
Meat Products	71 [13%] (3)	4,600 [14%] (4)	111.1 [11%] (6)	897.5 [9%] (6)	248.0 [5%] (7)	654.4 [13%] (4)
Dairy Products	58 [10%] (5)	3,400 [10%] (6)	119.6 [12%] (4)	1,458.2 [15%] (3)	418.6 [9%] (5)	1,034.3 [20%] (1)
Canned and Frozen Foods	55 [10%] (6)	4,700 [14%] (5)	134.7 [13%] (3)	1,635.3 [17%] (2)	898.7 [20%] (2)	734.8 [14%] (3)
Grain Mill Products	18 [3%] (8)	700 [2%] (8)	24.2 [2%] (8)	178.1 [2%] (9)	67.9 [2%] (8)	110.9 [2%] (9)
Bakery Products	147 [26%] (1)	7,300 [22%] (1)	201.6 [20%] (1)	1,124.2 [12%] (4)	715.7 [16%] (3)	405.0 [8%] (6)
Sugar & Confectionery Products	40 [7%] (7)	2,200 [7%] (7)	81.9 [8%] (7)	737.2 [8%] (7)	379.1 [8%] (7)	354.5 [5%] (7)
Fats and Oils	10 [2%] (9)	800 [2%] (9)	21.8 [2%] (9)	336.6 [3%] (8)	111.3 [2%] (9)	227.3 [4%] (8)
Beverages	69 [12%] (4)	5,100 [15%] (2)	204.4 [20%] (2)	2,222.9 [23%] (1)	1,215.2 [27%] (1)	1,021.6 [19%] (2)
Miscellaneous Food & Kindred Products	99 [17%] (2)	4,900 [15%] (3)	124.4 [12%] (5)	1,055.3 [11%] (5)	461.1 [10%] (4)	592.3 [12%] (5)

Numbers in [brackets] represent percentage of total industry.

Numbers in (parentheses) represent the rank of the sectors.

Source: New Jersey Census of Manufactures, 1992.

**Figure 2: Breakdown of the New Jersey Food Manufacturing Industry's 1992 Shipments by Sector.**



Source: New Jersey Census of Manufacturing, 1992.

**Exhibit 6: Statistics Related to New Jersey's Food Manufacturing Industry for 1967-1992 (Number of Establishments, Employment, Value of Shipments, Payroll, and Value Added).**

Year	Establishments (number)	Employees (number)	Value of Shipments (\$ million)	Annual Payroll (\$ million)	Value Added (\$million)
1967	948	60,500	3,192.8	421.7	1,256.5
1972	864	53,700	3,849.3	505.5	1,513.0
1977	753	43,200	6,072.5	595.8	1,996.4
1982	621	39,100	8,040.7	792.4	3,266.1
1987	589	36,100	9,030.2	917.4	4,192.7
1992	567	33,500	9,645.3	1,023.7	4,515.6
% Change (1987-1992)	-3.74 <sup>a</sup>	-7.20	6.81 <sup>b</sup>	11.59 <sup>b</sup>	7.70 <sup>b</sup>
% Change (1967-1992)	-40.19	-44.63	202.10 <sup>b</sup> (-27.15) <sup>c</sup>	142.76 <sup>b</sup> (-41.46) <sup>c</sup>	259.38 <sup>b</sup> (-13.33) <sup>c</sup>

<sup>a</sup>Negative percentage changes denote a decline over the time period indicated.

<sup>b</sup>Percentage changes are in **nominal** terms.

<sup>c</sup>Percentage changes in **(parentheses)** are in **real** terms after correction for inflation.

Source: New Jersey Census of Manufacturers, various census years.

**Exhibit 7: Statistics Related to All New Jersey's Manufacturing Sectors for 1967-1992 (Number of Establishments, Employment, Value of Shipments, Payroll, and Value Added).**

Year	Establishments (number)	Employees (number)	Value of Shipments (\$ million)	Annual Payroll (\$ million)	Value Added (\$million)
1967	14,740	881,300	25,761.7	6,325.4	12,738.2
1987	14,442	690,800	82,451.0	18,549.9	42,526.6
1992	13,277	573,900	86,774.5	20,613.2	46,045.3
% Change (1987-1992)	-8.07 <sup>a</sup>	-16.92	5.24 <sup>b</sup>	11.12 <sup>b</sup>	8.27 <sup>b</sup>
% Change (1967-1992)	-9.93	34.88	236.84 <sup>b</sup>	225.88 <sup>b</sup>	261.47 <sup>b</sup>

<sup>a</sup> Negative percentage changes denote a decline over the time period indicated.

<sup>b</sup> Percentage changes are in **nominal** terms.

Source: New Jersey Census of Manufacturers, various census years.

try between 1967 and 1992, real wages actually fell by 41 percent when inflation is factored in. Also, the increase in nominal payroll is considerably less than increases in payrolls paid by all other food industries over the same period.<sup>13</sup>

Other economic indicators similarly suggest that New Jersey's food manufacturing industry is struggling at best. For instance, the value of shipments in the industry increased from \$3.19 billion in 1967 to \$9.65 billion in 1992, an increase of only 202 percent, in nominal terms.<sup>14</sup> After accounting for inflation, the value of shipments actually declined by 27 percent, in real terms, over these 25 years. The fact that the nominal increase in value added by New Jersey food manufacturers, of 259 percent, was greater than the industry's nominal percentage change in value of shipments, over the 1967 to 1992 pe-

riod, suggests that New Jersey food manufacturing firms have become more highly value added. In real terms, after accounting for inflation, value added declined by only 13 percent, over these 25 years, compared with a 27 percent decline in value of shipments. The cost of raw material inputs used by the state's food manufacturers rose by 170 percent, in nominal terms, over the past 25 years (not shown in Exhibit 6), which represents a significant decrease in real terms.

New Jersey's manufacturing sector as a whole experienced declined between 1967 and 1992, as presented in Exhibit 7. However, the contraction of the state's food manufacturing industry was more acute over this 25 year period compared with the manufacturing sector as a whole. While the number of all manufacturing establishments in New Jersey fell by 10 percent, the number of food

<sup>13</sup> For comparison, annual payroll in New Jersey's food wholesale, food retail, and food service industries increased, in nominal terms, by 696,520, and 621 percent, respectively, during the period from 1967 to 1992.

<sup>14</sup> For comparison, sales in New Jersey's food wholesale, food retail, and food service industries increased, in nominal terms, by 716,391, and 510 percent, respectively, during the period from 1967 to 1992.

manufacturers fell by more than 40 percent, over these 25 years. When looking at employment, the number of paid employees in all manufacturing business in the state declined by 35 percent, while it decreased by an even greater percentage, of 45 percent, in the food manufacturing sector. Furthermore, gains in value of shipments in nominal terms grew at a greater rate in the manufacturing sector as a whole (237 percent) than in food manufacturing (202 percent), from 1967 to 1992. This represents a much more significant decline in real terms in value of shipments for food manufacturing over that of all manufacturing in the state.

While food manufacturing declined more than manufacturing as a whole in New Jersey over the long-term, there is evidence that this decline has slowed down in the short-term. Between 1987 and 1992, the food manufacturing sector has performed on par with, and in terms of some indicators, slightly better than the state's entire manufacturing industry. During these 5 years, the number of food manufacturing establishments fell by nearly 4 percent while the number of all manufacturing firms decreased by more than 8 percent. Similarly in employment, the number of paid employees shrunk by 7 percent in food manufacturing while it fell by nearly 17 percent in the whole manufacturing industry. The nominal percentage growth in value of shipments over these 5 years was slightly greater for food manufacturing (6.8 percent) than for the entire manufacturing sector (5.2 percent). An accounting of how the food manufacturing sector performed relative to the other manufacturing sectors in New Jersey is presented in Exhibit 15 and discussed in part C of this section. More detailed accounting of trends in New Jersey's food manufacturing industry between 1967 and 1992 is presented in Exhibits 8 through 16.

### ***1. Number of Establishments***

The number of establishments manufacturing food products declined steadily be-

tween 1967 and 1992 in New Jersey. This downward trend was experienced by all sectors of the state's food manufacturing industry. Exhibit 8 shows that while the number of establishments for all food manufacturing declined by more than 40 percent over the period, dairy and beverage processing firms were lost at the fastest rate (54 percent). Other sectors losing firms at a rate exceeding the industry average were canned and frozen food processors (53 percent) and grain mill processors (51 percent). While also experiencing substantial declines in the number of firms operating in New Jersey, meat processing, sugar and confectionery processing, miscellaneous food processing, and bakery firms were lost at relatively lower rates (38, 32, 29, and 28 percent, respectively). The lowest rate of loss between 1967 and 1992 was experienced in the flavors and extracts sector (18 percent), which is a subsector of beverage processing.

During the recessionary period of 1987 to 1992, the number of establishments in the food manufacturing industry as a whole continued in a downward trend (4 percent), however there was significant variation among the various subsectors. Firms processing bakery products experienced a significant increase in the number of establishments of nearly 20 percent, during this 5 year period. The flavors and extracts sector also added to their number of establishments, with nearly 4 percent growth despite the recessionary economic conditions of this period. Relatively small declines in establishment numbers were experienced by beverage processors (1 percent), meat processors (3 percent), and canned and frozen food processors (4 percent). Grain mill processing firms saw the greatest decline with a loss of 28 percent in number of establishments, followed by processors of fats and oils, dairy products, miscellaneous food products, and sugar and confectionery products, which lost 17, 15, 14, and 13 percent, respectively.

In general, New Jersey food manufacturing firms tend to be larger than counterparts

**Exhibit 8: Number of Establishments in New Jersey's Food Manufacturing Industry, 1967-1992.**

Industry Sector	1967	1987	1992	%Change (1987-92)	%Change (1967-92)
<b>Food and Kindred Products</b>	<b>948</b>	<b>589</b>	<b>567</b>	<b>-3.74</b>	<b>-40.19</b>
Meat Products	114	73	71	-2.74	-37.72
Dairy Products	127	68	58	-14.71	-54.33
Canned and Frozen Foods	117	57	55	-3.51	-52.99
Grain Mill Products	37	25	18	-28.00	-51.35
Bakery Products	204	123	147	19.51	-27.94
Sugar and Confectionery Products	59	46	40	-13.04	-32.20
Fats and Oils	N/A	12	10	-16.67	N/A
Beverages	149	70	69	-1.43	-53.69
Flavors and Extracts	33	26	27	3.85	-18.18
Miscellaneous Food and Kindred Products	140	115	99	-13.91	-29.29

Source: New Jersey Census of Manufacturers, various census years.

in the Northeast region, but smaller than their national counterparts in terms of sales volume. The average food processing establishment in New Jersey generated \$17.0 million in value of shipments in 1992, compared with \$13.4 million in the Northeast, and \$19.4 million in the United States. In fact, New Jersey has both very large processors and very small specialty processors, with significant numbers of firms at both ends of the spectrum.

**2. Employment**

As seen through the comparison of New Jersey's 1967 and 1992 food manufacturing employment figures, the number of jobs in the industry declined by nearly 45 percent over these 25 years. Exhibit 9 shows that during this long-run time period, all components of the industry experienced declines in hired workers. Firms engaged in processing canned and frozen foods, beverages, miscellaneous

foods, grain mill products, and bakery products experienced particularly high rates of decline in employment (54, 54, 53, 46, and 46 percent, respectively). Conversely, while also employing fewer workers in 1992 than in 1967, firms engaged in processing meat and dairy products lost proportionately fewer workers (6 and 28 percent, respectively) over the 25-year period than New Jersey's overall food manufacturing industry.

Examination of Exhibit 10 shows that the composition of the state's food processing workforce has shifted slightly toward production workers since 1967. While the industry workforce comprised 69.9 percent production workers and 30.1 percent nonproduction workers in 1967, in 1992, the total industry workforce consisted of 71.6 percent production workers and 28.4 percent nonproduction workers. This slight structural shift over these 25 years reflects the sharper decline in non-

**Exhibit 9: Employment in New Jersey's Food Manufacturing Industry, 1967-1992.**

Industry Sector	1967	1987	1992	%Change (1987-92)	%Change (1967-92)
<b>Food and Kindred Products</b>	<b>60,500</b>	<b>36,100</b>	<b>33,500</b>	<b>-7.20</b>	<b>-44.63</b>
Meat Products	4,900	4,100	4,600	12.20	-6.12
Dairy Products	4,700	3,100	3,400	9.68	-27.66
Canned and Frozen Foods	10,400	6,300	4,700	-25.40	-54.81
Grain Mill Products	1,300	N/A	700	N/A	-46.15
Bakery Products	13,500	8,200	7,300	-10.98	-45.93
Sugar and Confectionery Products	N/A	2,600	2,200	-15.38	N/A
Fats and Oils	N/A	N/A	800	N/A	N/A
Beverages	11,000	4,000	5,100	27.50	-53.64
Miscellaneous Food and Kindred Products	10,500	6,000	4,900	-18.33	-53.33

Source: New Jersey Census of Manufacturers, various census years.

production workers (48 percent) relative to the decline in production workers (43 percent).

More recently, the rate of employment loss in the state's food manufacturing industry has slowed slightly. Between 1987 and 1992, the industry's workforce declined by 7 percent. In fact, Exhibit 9 shows growth in the beverage, meat, and dairy processing sectors, which respectively, employed 28, 12, and 10 percent more workers in 1992 than in 1987. Much of the growth in employment in the beverage sector may be attributable to expansion in the flavors and extracts subsector, even though detailed employment figures are not available for New Jersey. On the other hand, processors of miscellaneous food items, sugar and confectionery products, and bakery products continued to experience declines in employment of 18, 15, and 11 percent, respectively. Canned and frozen food processors experienced a sharp decrease of 25 percent in employment between 1987 and 1992.

Job quality in the food manufacturing sector may be evaluated on the basis of worker productivity. Worker productivity can be measured in terms of sales per dollar of payroll and the value of output (shipments) generated per worker. As shown in Exhibit 11, the average value of shipments per dollar of payroll was lower than the national average, but slightly higher than the Northeast average. This relationship was consistent over the 1967 to 1992 time period. In 1992, every dollar paid to a New Jersey food processing employee generated \$9.40 in shipments (gross sales), compared to \$9.20 in the Northeast and \$11.00 in the nation. Productivity measured on the basis of sales per employee, however, shows that workers in New Jersey's food manufacturing industry have typically been more productive than their national and regional counterparts. In 1992, the average food manufacturing worker in the New Jersey generated \$287,919 in shipments, compared to



**Exhibit 10: Production Worker and Nonproduction Worker Contributions to Total Employment and Payroll in New Jersey's Food Manufacturing Industry, 1967-1992.**

Year	Production Workers	Nonproduction Workers	Total Employment	Production Worker Wages (\$ million)	Non production Worker Wages (\$ million)	Total Payroll
1967	42,300 (69.9%)	18,200 (30.1%)	60,500	264.2 (62.7%)	157.5 (37.3%)	421.7
1972	38,300 (71.3%)	15,400 (28.7%)	53,700	324.8 (64.3%)	180.7 (35.7%)	505.5
1977	30,800 (71.3%)	12,400 (28.7%)	43,200	380.1 (63.8%)	215.7 (36.2%)	595.8
1982	28,000 (71.6%)	11,100 (28.4%)	39,100	514.8 (65.0%)	277.6 (35.0%)	792.4
1987	25,900 (71.7%)	10,200 (28.3%)	36,100	584.2 (63.7%)	333.2 (36.3%)	917.4
<b>1992</b>	<b>24,000 (71.6%)</b>	<b>9,500 (28.4%)</b>	<b>33,500</b>	<b>632.8 (61.8%)</b>	<b>390.9 (38.2%)</b>	<b>1,023.7</b>

Source: New Jersey Census of Manufacturers, various census years.

**Exhibit 11: Productivity of Food Manufacturing Workers in New Jersey, the Northeast, and the United States, 1967-1992.**

Value of Shipments per Dollar of Payroll	1967	1972	1977	1982	1987	1992
New Jersey	7.6	7.6	10.1	10.2	9.9	9.4
Northeast	6.9	7.2	8.9	9.3	9.4	9.2
United States	8.3	8.9	10.4	10.8	11.0	11.0
Value of Shipments per Employee (\$)	1967	1972	1977	1982	1987	1992
New Jersey	52,777	71,676	140,588	205,652	250,139	287,919
Northeast	43,870	62,285	111,838	168,612	212,705	255,346
United States	50,836	73,314	126,916	188,566	227,585	268,365

Source: New Jersey Census of Manufacturers, various census years.

\$255,346 in the Northeast, and \$268,365 in the nation.

### 3. Payroll

Examination of long-term trends shows that the aggregate annual payroll for New Jersey's food manufacturing industry increased by 142 percent between 1967 and 1992, as shown in Exhibit 12. Firms involved with processing dairy, meat, and grain mill products exceeded the 142 percent rate, as the payrolls of these sectors increased by 268, 221, and 147 percent, respectively. The payrolls of firms processing bakery products, canned or frozen goods, beverages, and miscellaneous food items all expanded at rates below the industry average over this long-run period.

Exhibit 12 shows that more recently (between 1987 and 1992), the annual payroll of New Jersey's food manufacturing industry increased by nearly 12 percent. However, a

sectoral analysis reveals significant disparity in the performance of the industry's different components. Significant growth in annual payroll was experienced by beverage processing firms (60 percent) during this five year period. This reflects growth of flavors, extracts, and ingredient manufacturers. The payrolls of processing firms specializing in dairy and meat products increased by 42 and 33 percent, respectively. More moderate payroll growth was seen in sugar and confectionery (9 percent) and bakery (2 percent) sectors. In contrast, declines in annual payroll were experienced between 1987 and 1992 by firms engaged in the processing of canned and frozen foods (14 percent) and miscellaneous food items (15 percent).

Overall, employees in New Jersey's food manufacturing industry earned higher annual salaries than their counterparts elsewhere. In 1992, the average food manufacturing employee in New Jersey earned

**Exhibit 12: Annual Payroll Issued by New Jersey's Food Manufacturing Industry, 1967-1992 (in \$ million).**

Industry Sector	1967	1987	1992	%Change (1987-92)	%Change (1967-92)
<i>Food and Kindred Products</i>	<i>421.7</i>	<i>917.4</i>	<i>1,023.7</i>	<i>11.59</i>	<i>142.76</i>
Meat Products	34.6	84.3	111.1	31.79	221.10
Dairy Products	32.5	84.5	119.6	41.54	268.00
Canned and Frozen Foods	60.4	157.5	134.7	-14.48	123.01
Grain Mill Products	9.8	N/A	24.2	N/A	146.94
Bakery Products	84.4	197.2	201.6	2.23	138.86
Sugar and Confectionery Products	N/A	75.0	81.9	9.20	N/A
Fats and Oils	N/A	N/A	21.8	N/A	N/A
Beverages	91.9	127.5	204.4	60.31	122.42
Miscellaneous Foods and Kindred Products	81.3	145.5	124.4	-14.50	53.01

Source: New Jersey Census of Manufacturers, various census years.

\$30,558. In contrast, the respective United States salary was substantially lower at \$24,438 and the respective salary in the Northeast was \$27,649.

#### 4. Value of Shipments

Exhibit 13 shows that relative to 1967, all sectors of food manufacturing in the state experienced some growth in sales by 1992. On average, the value of shipments produced annually by the industry increased by nearly 202 percent over the long-term period from 1967 and 1992. A sectoral analysis shows that above average growth in sales was experienced by dairy processors (473 percent), beverage processors (309 percent), and canned and frozen food processors (306 percent). Conversely, growth in the value of shipments was below the industry average for firms engaged in the processing of bakery (195 percent), meat (129 percent), grain mill (94 percent), and miscellaneous food products (9 percent).

More recently, the value of shipments by New Jersey's food manufacturing industry increased nearly 7 percent between 1987 and 1992. Exhibit 13 shows that the largest increases in annual shipment value were experienced in firms engaged in processing beverages (38 percent), dairy products (37 percent), meat products (21 percent), and bakery products (10 percent). On the other hand, the value of canned and frozen foods processed in the state grew by only 2 percent during the period. The value of shipments of manufactured products in the miscellaneous foods and in the sugar and confectionery sectors actually declined by 34 and 16 percent, respectively.

#### 5. Value Added

As illustrated in Exhibit 14, the level of value added by New Jersey food manufacturers increased nearly 259 percent between 1967 and 1992. The sectors involved with processing canned and frozen foods, dairy prod-

**Exhibit 13: Value of Shipments Generated by New Jersey's Food Manufacturing Industry, 1967-1992 (in \$ million).**

Industry Sector	1967	1987	1992	%Change (1987-92)	%Change (1967-92)
<i>Food and Kindred Products</i>	<i>3,192.8</i>	<i>9,030.2</i>	<i>9,645.3</i>	<i>6.81</i>	<i>202.10</i>
Meat Products	391.4	742.7	897.5	20.84	129.31
Dairy Products	254.5	1,062.8	1,458.2	37.20	472.97
Canned and Frozen Foods	403.0	1,606.6	1,635.3	1.79	305.78
Grain Mill Products	91.7	N/A	178.1	N/A	94.22
Bakery Products	381.5	1,018.4	1,124.2	10.39	194.68
Sugar and Confectionery Products	N/A	881.3	737.2	-16.35	N/A
Fats and Oils	N/A	N/A	336.6	N/A	N/A
Beverages	544.1	1,615.8	2,222.9	37.57	308.55
Miscellaneous Foods and Kindred Products	965.5	1,600.2	1,055.3	-34.05	9.30

Source: New Jersey Census of Manufacturers, various census years.

**Exhibit 14: Value Added by New Jersey's Food Manufacturing Industry, 1967-1992 (in \$ million).**

Industry Sector	1967	1987	1992	%Change (1987-92)	%Change (1967-92)
<b>Food and Kindred Products</b>	<b>1,256.5</b>	<b>4,192.7</b>	<b>4,515.6</b>	<b>7.70</b>	<b>259.38</b>
Meat Products	70.2	204.9	248.0	21.03	253.28
Dairy Products	75.1	287.8	418.6	45.45	457.39
Canned and Frozen Foods	158.9	842.8	898.7	6.63	465.58
Grain Mill Products	25.1	N/A	67.9	N/A	170.52
Bakery Products	211.4	691.2	715.7	3.54	238.55
Sugar and Confectionery Products	N/A	378.6	379.1	0.13	N/A
Fats and Oils	N/A	N/A	111.3	N/A	N/A
Beverages	285.1	872.6	1,215.2	39.26	326.24
Miscellaneous Foods and Kindred Products	358.6	701.5	461.1	-34.27	28.58

Source: New Jersey Census of Manufacturers, various census years.

ucts, and beverages have become more intensively value added when compared to the industry as a whole, with growths in value added of 466, 457, and 326 percent, respectively. Conversely, while processors of meat products, bakery products, and grain products experience growth in value added, they failed to keep pace with the increase experienced by the overall industry during this 25 year period. Similarly, over the long run, firms engaged in processing miscellaneous food items have significantly lagged behind the rest of the industry in terms of value added with only 29 percent growth in value added over these 25 years.

Exhibit 14 also shows that more recently, the level of value added by New Jersey's food manufacturing industry increased by nearly 8 percent between 1987 and 1992. Significant growth in value added beyond the industry average was experienced by processors of dairy products (46 percent), beverages (39

percent), and meat products (21 percent). The sectors of processed canned and frozen foods, bakery products, and sugar and confectionery products grew in value added, but at rates below that of the industry average. In contrast, the value added by firms processing miscellaneous food items declined by 34 percent in the years from 1987 to 1992.

### **C. Comparison of Food Manufacturing to Other Manufacturing Sectors in New Jersey: Short- and Long-Term**

It is important to recognize that manufacturing has been declining on a whole in New Jersey as well as the nation. The picture would not be complete if we did not compare food manufacturing to other manufacturing sectors in New Jersey. It is important to conduct this comparison since recent trends from

1987 to 1992 seem to suggest that while food manufacturing fared worse than all manufacturing between 1967 and 1992, it has fared better than manufacturing as a whole over the shorter run. In short, food manufacturing has declined less than numerous other sectors over the near term. Exhibit 15 presents a comparison of the food manufacturing sector's performance with the other manufacturing sectors in New Jersey, over the long- and short-term.

One of the reasons that food manufacturing appears to have grown much slower (or declined to a greater degree) in the long-term relative to the entire manufacturing industry is because a few sectors grew at rates much greater than the industry as a whole, as shown in Exhibit 15. While the value of all manufacturing shipments grew by 237 percent, in nominal terms, between 1967 and 1992, several sectors grew at significantly greater rates including instruments (1,078 percent), printing and publishing (722 percent), rubber and plastics (437 percent), chemicals (391 percent), and petroleum (332 percent). Other sectors with above average shipments growth over the long-term were lumber (279 percent), furniture and fixtures (258 percent), paper (246 percent), and miscellaneous manufacturing (243 percent). Of the 20 different manufacturing sectors, food manufacturing ranked tenth in value of shipments growth over the long-term. Shipments in food manufacturing grew at a greater nominal rate (202 percent) than such sectors as apparel (180 percent), fabricated metal (170 percent), industrial machinery (158 percent), and stone, clay, and glass products (133 percent). The sectors that grew the least during this 25-year period were textiles (69 percent), primary metals (68 percent), electronics (59 percent), and transportation equipment (7 percent).

In terms of long-term value added growth, food manufacturing ranked sixth (259 percent), behind instruments (1,069 percent), printing and publishing (829 percent), chemicals (450 percent), rubber and plastics (399

percent), and furniture (289 percent). In terms of the long-term change in employment, food manufacturing ranked in the middle of the sectors with a decline of 45 percent. This was behind instruments (107 percent growth), rubber and plastics (4 percent decline), lumber (23 percent decline), furniture (28 percent decline), chemicals (29 percent decline), paper (33 percent decline), and petroleum (33 percent decline). However, employment in food manufacturing fell less than other sectors including electronics (74 percent decline), transportation (73 percent decline), primary metals (67 percent decline), and textiles (57 percent decline), to name a few.

As mentioned above, the rate of decline in food manufacturing in New Jersey slowed over the short-term. Between 1987 and 1992, food manufacturing fared better than the manufacturing industry as a whole. Of all manufacturing sectors, food manufacturing ranked third in employment change, fifth in value of shipments growth, and fifth in value added growth. In terms of nominal value of shipments over the short run, food manufacturing grew by 7 percent which was greater than such sectors as paper (5 percent), apparel (4 percent), instruments (3 percent), furniture (21 percent decline), and lumber (36 percent decline), to list a few. However, growth in the value of shipments in food manufacturing was less than the growth experienced in petroleum (26 percent), printing (25 percent), chemicals (19 percent), and rubber and plastics (14 percent). Growth in value added between 1987 and 1992 was nearly 8 percent in food manufacturing, behind printing (35 percent), chemicals (24 percent), rubber and plastics (18 percent), and petroleum (9 percent).

The rate of decline in food manufacturing employment also slowed over the short-term. Food manufacturing employment fell by 7 percent, between 1987 and 1992. This was the smallest decline of all manufacturing sectors except for petroleum, which grew by 7 percent. The contraction in food manufacturing employment over these 5 years was

**Exhibit 15: Percentage Change in Employment, Value of Shipments, and Value Added in New Jersey's Manufacturing Industry by Sector, 1967-1992.**

Manufacturing Sector	Employment (% change)		Value of Shipments (% change)		Value Added (% change)	
	1987-92	1967-92	1987-92	1967-92	1987-92	1967-92
<b>Food and Kindred Products</b>	<b>-7.20 [3]</b>	<b>-44.63 [12]</b>	<b>6.81 [5]</b>	<b>202.10 [10]</b>	<b>7.70 [5]</b>	<b>259.38 [6]</b>
Tobacco	NA	NA	NA	NA	NA	NA
Textile Mill Products	NA	-57.30 [16]	NA	69.04 [15]	NA	NA
Apparel and Other Textile Products	-18.18 [8]	-52.50 [14]	3.77 [7]	180.21 [11]	7.23 [6]	154.02 [12]
Lumber and Wood Products	-43.75 [18]	-23.40 [4]	-35.79 [16]	278.95 [6]	-33.60 [17]	250.31 [7]
Furniture and Fixtures	-39.83 [17]	-27.55 [5]	-20.50 [15]	258.45 [7]	-24.56 [16]	288.64 [5]
Paper and Allied Products	-13.31 [7]	-33.23 [7]	4.59 [6]	245.86 [8]	2.53 [7]	243.78 [9]
Printing and Publishing	-9.35 [4]	-40.20 [10]	24.81 [2]	722.26 [2]	34.56 [1]	828.84 [2]
Chemicals and Allied Products	-10.29 [6]	-28.82 [6]	19.48 [3]	391.78 [4]	23.85 [2]	449.66 [3]
Petroleum and Coal Products	7.32 [1]	-33.33 [8]	25.54 [1]	332.72 [5]	9.26 [4]	172.24 [10]
Rubber and Miscellaneous Plastics Products	-9.70 [5]	-4.12 [3]	14.25 [4]	437.41 [3]	17.87 [3]	399.46 [4]
Leather and Leather Products	-35.71 [16]	-84.87 [20]	NA	NA	NA	NA
Stone, Clay, and Glass Products	-24.55 [12]	-55.26 [15]	-18.34 [14]	133.02 [14]	-18.55 [15]	132.03 [13]
Primary Metal Industries	-31.11 [14]	-67.02 [17]	1.34 [9]	68.46 [16]	0.41 [8]	87.92 [15]
Fabricated Metal Products	-20.76 [11]	-41.29 [11]	-7.30 [11]	169.72 [12]	-3.10 [9]	157.35 [11]
Industrial Machinery and Equipment	-26.25 [13]	-47.65 [13]	-0.07 [10]	157.61 [13]	-5.18 [11]	126.31 [14]
Electronic and Other Electric Equipment	-34.25 [15]	-74.27 [19]	-11.20 [13]	58.65 [17]	-11.29 [13]	46.23 [16]
Transportation Equipment	-46.63 [19]	-73.23 [18]	-48.62 [17]	7.38 [18]	-16.21 [14]	20.76 [17]
Instruments and Related Products	(20.4) [10]	106.91 [1]	2.90 [8]	1,078.35 [1]	-5.72 [12]	1,069.40 [1]
Miscellaneous Manufacturing Industries	-19.07 [9]	-39.62 [9]	-8.34 [12]	243.66 [9]	-4.06 [10]	245.71 [8]
Auxiliaries	-4.41 [2]	50.32 [2]	—	—	—	—
<b>All Manufacturing Sectors</b>	<b>-16.92</b>	<b>-34.88</b>	<b>5.24</b>	<b>236.84</b>	<b>8.27</b>	<b>261.47</b>

Numbers in [brackets] represent the **rank** of the sectors.

Source: *New Jersey Census of Manufacturers, various census years.*

less than all other sectors including printing (9 percent decline), rubber and plastics (10 percent decline), chemicals (10 percent decline), paper (13 percent decline), furniture (40 percent decline), and lumber (44 percent decline), to single out a few.

Some have attributed this over all slow down in the decline of food manufacturing vis-a-vis other manufacturing sectors to attempts by the state in recent years to offset disadvantages of operating in New Jersey. Such supportive state-level activities have included economic development assistance, regulatory reform, and investments in science and technology development.

## **D. New Jersey's Contribution to the Regional and National Food Manufacturing Industry**

The relative importance of New Jersey's food manufacturing industry and its competitiveness can be examined by comparing the state's contribution to both regional and national population with its contribution to regional and national food manufacturing industry shipments, employment, payroll, establishments, and value added. If the state's share of national food manufacturing employment, for instance, exceeds its share of national population, then New Jersey is over-represented in the area of food manufacturing vis-a-vis other states. Similarly, if trends in the state's share of population diverge from trends in the state's food manufacturing indicators (employment, value added, etc.), changes in the state's competitiveness may be indicated. Exhibit 16 summarizes the trends between 1967 and 1992 in New Jersey's contribution to regional and national population, as well as the state's prominence in the regional and national food manufacturing industries.

### **1. Relative to the United States**

Exhibit 16 clearly shows that New Jersey's

share of the national population has been declining steadily since 1967. New Jersey's food manufacturing sales activity was disproportionately high relative to its population in 1967, suggesting a healthy and viable industry. Since 1967, however, New Jersey's shares of national food manufacturing employment, value of shipments, and payroll have been steadily declining. By the early 1970s, from the national perspective, food processing activity in the state fell to a level more consistent with its contribution to the national population. The decline in the state's industry continued during the 1980s to the extent that, in 1992, New Jersey held a disproportionately low share of the national food manufacturing industry given the state's population. The number of food manufacturing firms located in New Jersey has historically been low relative to the state's share of national population. While there has been some fluctuation since 1967 in the percentage of the nation's food processing firms located in New Jersey, the trend over time has been toward fewer firms in the state.

On average, New Jersey firms engaged in food manufacturing tend to be smaller than their counterparts in the nation as a whole. In 1992, the average food manufacturing firm in New Jersey employed 18 percent fewer workers relative to the national average (an average of 59 workers per firm in New Jersey compared with an average of 72 workers per firm nationally). The average food manufacturing firm in the state also generated more than 12 percent fewer sales relative to the national average (an average of \$17.011 million in sales per firm in New Jersey compared with an average of \$19.423 million in sales per firm in the nation), in 1992. However, when looking at value added, New Jersey food manufacturing firms generated more value added relative to their sales compared with firms in the nation as a whole (value added per value of shipments is 47 percent in New Jersey and 39 percent in the nation). This indicates that while New Jersey firms may be

smaller in many respects, their products are more highly and intensively manufactured, as reflected in their greater valued added percentage, compared with firms in the nation.

The decline, over time, in the share of the national industry located in New Jersey suggests a significant erosion of the comparative

advantage held by food manufacturing firms operating in the state. Only some of this decline may be attributed to the relative shift in demand elicited by changing demographic patterns (e.g., population shifts). The presence of major obstacles to the economic growth and viability of food manufacturing firms in the state is also indicated.

**Exhibit 16: New Jersey's Contribution to the Regional and National Food Manufacturing Industry and Population, 1967-1992.**

<b>New Jersey's Contribution (in % terms) to:</b>	<b>1967</b>	<b>1972</b>	<b>1977</b>	<b>1982</b>	<b>1987</b>	<b>1992</b>	<b>% Change (1987-92)</b>	<b>% Change (1967-92)</b>
<i>United States Population</i>	3.54	3.53	3.39	3.20	3.15	3.07	-2.54	-13.28
U.S. Food Manufacturing Establishments	2.92	3.07	2.82	2.81	2.86	2.73	-4.50	-6.51
U.S. Food Manufacturing Employment	3.68	3.42	2.84	2.63	2.49	2.23	-10.44	-39.40
U.S. Food Manufacturing Value of Shipments	3.80	3.35	3.15	2.87	2.74	2.39	-12.77	-37.11
U.S. Food Manufacturing Payroll	4.19	3.92	3.21	3.04	3.03	2.78	-8.25	-33.65
U.S. Food Manufacturing Value Added	4.72	4.25	3.56	3.69	3.45	2.88	-16.52	-38.98
<i>Northeast Population</i>	14.50	14.78	14.87	15.06	15.26	15.30	0.26	5.52
N.E. Food Manufacturing Establishments	12.35	13.69	13.32	13.89	14.19	13.96	-1.60	13.04
N.E. Food Manufacturing Employment	17.08	17.31	16.24	16.12	15.71	15.78	0.40	-7.61
N.E. Food Manufacturing Value of Shipments	20.54	19.92	20.41	19.67	18.47	17.78	-3.74	-13.44
N.E. Food Manufacturing Payroll	18.84	18.96	17.76	18.11	17.67	17.44	-1.30	-7.43
N.E. Food Manufacturing Value Added	21.36	20.99	19.60	21.27	20.34	19.01	-6.54	-11.00

Source: New Jersey Census of Manufacturers, various census years.



## **2. *Relative to the Northeast***

Despite declines in the state's shares of regional food manufacturing employment, value of shipments, payroll, and value added since 1967, New Jersey still retained a high proportion of the Northeast's food manufacturing activity in 1992, relative to the state's share of northeastern population. Historically, New Jersey has been a leading state in the Northeast in terms of food manufacturing activity. However, based on current trends, it appears that the state's attractiveness to food manufacturers, vis-a-vis other states in the region, is decreasing. Between 1967 and 1992, New Jersey's share of the regional industry fluctuated considerably. Yet, the net result has been a decline in New Jersey's shares of northeastern food manufacturing employment, value of shipments, payroll, and value added. During this 25 year period, while the percentage share of New Jersey's value of shipments from food manufacturing in the region declined by more than 13 percent, the state's share of regional food manufacturing establishments actually increased by 13 percent. It should be noted that while the actual number of food manufacturing firms in New Jersey declined by 40 percent between 1967 and 1992 (see Exhibit 7), other states in the region experienced even greater declines in the number of food manufacturing firms over this period. Taken in combination, these factors point to the fact that New Jersey's food processing firms, while on average are larger than firms the Northeast, have been shrinking in size, relative to their counterparts in the region, over time.

In 1992, the average food manufacturing firm in New Jersey employed 59 workers and generated more than \$17 million in shipments. In comparison, the average food manufacturing firm in the Northeast employed 52 workers and generated \$13.4 million in shipments. This comparison reveals that the average New Jersey food manufacturing firm employed 13 percent more work-

ers, and generated 27 percent more in shipments than firms in the Northeast, in 1992. Furthermore, New Jersey food manufacturing firms generated more value added relative to their sales compared with firms in the region as a whole (value added per value of shipments is 47 percent in New Jersey and 44 percent in the Northeast) in 1992. This indicates that New Jersey products are more highly and intensively manufactured, as reflected in their greater valued added percentage, compared with firms in the region.

In recent years, similar declines have been experienced by the state's food manufacturing industry relative to other states in the Northeast. Between 1987 and 1992, New Jersey's share of Northeast food manufacturing establishments fell by nearly 2 percent along with decreases in shares of other economic indicators. New Jersey's share of Northeast food manufacturing value of shipments fell by 4 percent, value added fell by 7 percent, and payroll declined by 4 percent, while employment was held virtually constant with incremental growth of 0.4 percent.

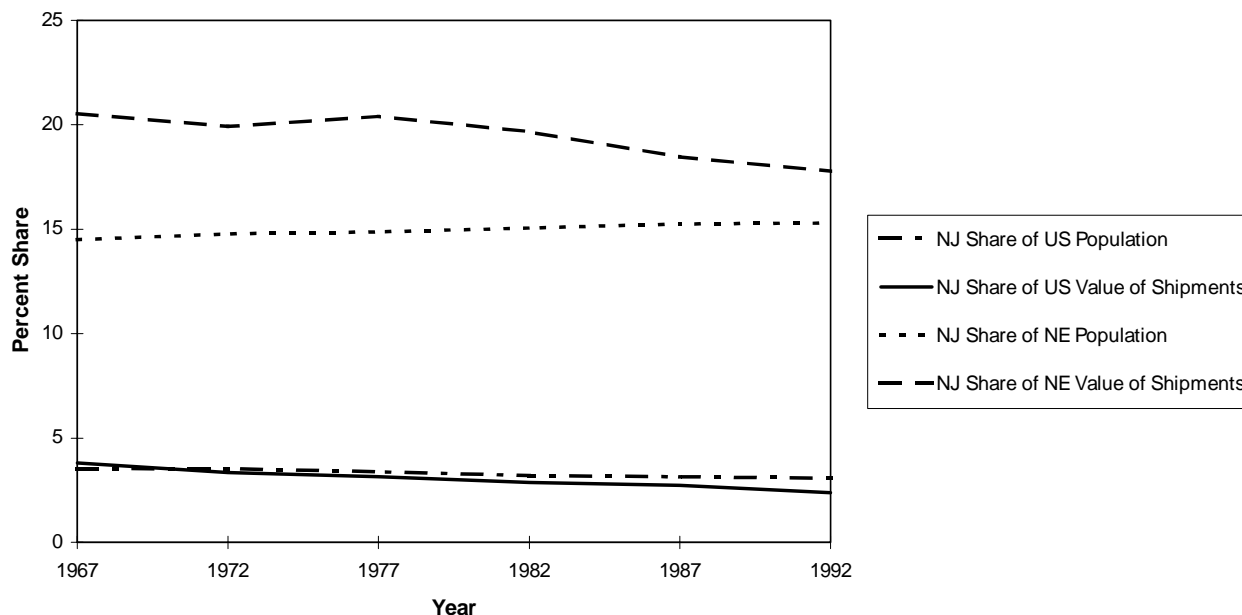
Consistent with the trend at the national level, it appears New Jersey is losing its comparative advantage in food manufacturing at the regional level as well. Despite a state population that is growing relative to the region, New Jersey is losing ground in food manufacturing to other states in the Northeast as the state's percentage shares of sales, employment, and value added continue to decline. This again reflects the existence of barriers to economic development and industry viability that are faced by food manufacturers operating in New Jersey. These barriers may not be faced by firms doing business other northeastern states.

In summary, while New Jersey's food manufacturing industry has experienced significant declines over the long and short run, in establishments and employment, the state has also seen an erosion in its position in food manufacturing both nationally and regionally.

These trends may indicate that operating conditions faced by firms manufacturing food products in New Jersey are more stringent and restrictive to business growth and viability than conditions prevailing in other states in the region and the nation as a whole. Fig-

ure 3 illustrates New Jersey's declining shares of both United States and Northeast food manufacturing industry activity in terms of the value of shipments as compared with the state's share of national and regional population.

**Figure 3: New Jersey's Shares of Regional and National Food Manufacturing Value of Shipments.**



Source: New Jersey Census of Manufacturing, various census years.

# III. The Need for Public Policy Initiatives to Improve the Business Climate

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## A. Attractiveness of New Jersey for Food Manufacturing

Numerous factors, including the historical significance of the state's food manufacturing industry, highlight the attractiveness of New Jersey for food processing activities. New Jersey is located amid an extremely large consumer market and close to the two major financial and commercial urban centers of New York and Philadelphia. New Jersey's position in this highly metropolitan corridor guarantees food manufacturers access to the state's \$18.6 billion food retail industry consisting of a wide variety and number of supermarkets, groceries, restaurants, and other places where food is purchased by consumers. In addition, the population in New Jersey and neighboring states is comprised of affluent consumers who spend significant proportions of their income on food. Furthermore, this great amount of food retail activity guarantees the presence of substantial food wholesaling and brokerage opportunities for moving processed food products into retail outlets.

New Jersey's coastal location provides opportunities for exporting processed foods, flavors, extracts, and ingredients and for importing raw ingredients through several major Northeastern ports. The state's \$800 million agricultural industry, along with proximity to significant agricultural production in such neighboring states as New York, Penn-

sylvania, and Delaware, and the \$96.3 million commercial fisheries industry in the state similarly assist in providing food processors with their requirements for raw materials while some what reducing transportation costs. With regard to the dairy industry, New Jersey has one of the largest dairy processing capacities in the United States providing ample opportunities for the manufacturing of dairy-based products.

New Jersey's well educated labor force is also an attractive feature to food processors. New Jersey is known nationally as a center for research and development in food processing, with a great proportion of companies having located their food science research facilities in the state. Especially attractive to flavor and extract manufacturers, is the abundance of workers with highly technical skills in chemistry and expertise in food science. The unique features of this labor force have aided in developing New Jersey as a national center for the flavors and extracts industry.

One of the most important infrastructures in New Jersey, that the state has assisted Rutgers University in developing to support the food manufacturing industry, is the Center for Advance Food Technology (CAFT) and its Food Manufacturing Technology (FMT) facility. This center has been an integrated part of research, technology development, and outreach programs in the state. Given the fact that New Jersey's business-regulatory climates are considered to be one of the most

taxing nationwide, access to research and technology development serve to offset the other disadvantages associated with doing business in the state. Two current technological problems facing the food manufacturing industry are the need for extended shelf life of refrigerated fresh foods and improved leak detection in packaging to avoid spoilage and the loss of flavor and texture. By providing industry with assistance in addressing such technical problems, through in house expertise and a network of affiliated consultants, CAFT and its FMT facility can provide New Jersey food manufacturing firms with a significant competitive advantage over companies in other states. The FMT facility can further assist New Jersey food manufacturing firms in developing new products, providing manufacturing startup assistance with minimal capital investment, solving short-run technical problems, and more fully utilizing their capacity. An example of an industry in the state that has benefitted from CAFT's innovations is the highly technologically-based flavors and extracts industry.

One of the fastest growing aspects of food manufacturing in the nation is nutraceutical products. Nutraceuticals are foods or food components that offer medical and health benefits including the prevention and treatment of disease. Products in this emerging category range from isolated nutrients, dietary supplements, functional foods, health foods, herbal products, other enhanced processed foods, teas, and fitness beverages. New Jersey is well positioned to be a leader in this growth area of nutraceuticals and medicinal foods. The state already has a well-developed, major pharmaceutical industry coupled with a highly-skilled, technical work force with expertise in food science and biotechnology.

An improved business climate with public policies geared towards economic development may offer opportunities for New Jersey's farmers to branch out into process-

ing with small scale facilities to provide value added, income opportunities. Encouragement of these types of processors has been identified by the FARMS Commission Report (Decter, Adelaja, and Meagher, 1994) as a way of enhancing the long-term viability of agriculture in the state. New opportunities in food processing, using local commodities, that build on New Jersey's strengths in agriculture, can bolster both the farming and food manufacturing sectors of the state's economy and provide attractive opportunities for growth.

Yet another rapidly growing sector of the food manufacturing industry is the processing of foods by restaurants and other food service establishments. The expansion of food processing activities is attractive to food service owners in the state given New Jersey's large number of high-income consumers and extensive network of food service establishments. This emerging sector also relies on the currently existing food service infrastructure in the state and will provide additional growth for the food manufacturing industry given proper development policies.

Even though food processing has been declining, New Jersey can capitalize on those areas where the state already has advantages and strengths. New Jersey offers the food manufacturing industry a comparative advantage in such areas as innovative and better technology development, assistance in solving short-run technical problems, state of the art research in nutraceuticals and flavors and extracts, and assistance in the development of new value added processing provided by CAFT and its FMT facility. These areas can provide the essential elements that will contribute to the growth and expansion of the food manufacturing industry in the state as it replaces other declining sectors. Favorable economic development policies and state support can further bolster the attractiveness for, and subsequent success of, food manufacturing in the New Jersey.

## **B. Importance of Supporting the Industry**

The food manufacturing industry presents numerous opportunities as a venue for economic development. As manufacturing jobs have declined, and the economy has shifted toward services. The state needs to develop strategies to maintain at least some of its manufacturing base. Service jobs often require minimal capital assets and investments relative to manufacturing. Consequently, many services are easily relocated to other states and areas of the country and are more vulnerable to policy, economic, transportation, fiscal, and population changes. As discussed above, manufacturing firms, on the other hand, require large fixed capital commitments which makes them relatively more difficult to move and relocate. As a result, manufacturing businesses can provide a more secure and stable employment base. It is perhaps easier to keep existing manufacturing firms in New Jersey than to attract new ones.

The quality of an industry must be a critical factor in the choice of industries to target for economic development. As indicated above, food manufacturing supports high-paying jobs for which average incomes are higher than in the service sector. Policies in support of the food manufacturing industry are, therefore, good mechanisms for securing a quality job base for the state. Food processing is also less environmentally threatening than many other types of manufacturing, such as chemicals, petroleum, and metals, due to the relatively nonhazardous nature of many food products and food wastes. Since all people need to eat, the processing of food is acceptable to the public, both politically and environmentally, compared with the manufacturing of other less benign types of products. A critical mass of food manufacturing-related activities is already in place in New Jersey. This has led to the development of significant infrastructure capacity, including transportation networks, sewerage facilities,

utilities, wholesale and brokerage, retail markets, and import and export facilities. To maximize opportunities for economic growth and development in the state, it is desirable to utilize such existing capacity and infrastructure to its optimal potential.

New Jersey has lost numerous food processors due to its comparative disadvantages stemming from such high costs of doing business as labor, real estate, utilities, regulation, taxes, and insurance. These factors make it difficult for New Jersey firms to operate and compete efficiently with businesses in states having lower costs. The decline of New Jersey's share of national and regional food manufacturing business, in value of shipments, employment, and value added, highlights the importance of supporting the remaining food manufacturing firms and encouraging the development of new food manufacturing activities in the state without compromising the environment.

A competitive advantage that the state offers the food manufacturing industry is in the area of research and technology development. For example, the manufacture of food flavors and extracts is technology-based and technology-intensive. CAFT and its FMT facility at Rutgers University provide research, development, training, and support in solving immediate and long-term technical problems to New Jersey firms in food science. Public support of technology development is crucial in New Jersey given that access to technology is one of the few advantages available to food manufacturing firms in the state. Such support can offset some of the disadvantages of doing business in the state and can provide a level playing field especially for firms dependent on these technological advances. Research and technology development are a long-term strategies to achieve competitiveness. The technological prominence of the United States in the food area was achieved largely due to past public investments in basic food science and technology research nationwide. Food manufacturing technology

assistance is beneficial both in the short- and long-term. Job retention and economic development strategies by the state should be based on accentuating the areas where New Jersey has strengths, and technology is one of those strengths.

By creating an attractive business environment, New Jersey can capitalize on its advantages and can help support and develop such new, emerging, and rapidly growing food manufacturing areas as nutraceuticals and medicinal foods, value added local agricultural processing, and food service-based processing. Agricultural producers in the state are in need of enhanced marketing outlets for their commodities as a means of generating additional and alternative sources of revenue. Encouraging small-scale, value added processing of farm products supports both agriculture and farmland preservation efforts in the state, as well as providing growth to the food manufacturing industry. Fostering the growth of food service-based food processing also provides a means of generating alternative and additional sources of income for food service establishments, and encourages growth in both food service and food manufacturing sectors.

Growth strategies based on exploiting the state's capacities in the rapidly growing pharmaceutical industry and advantages in food science technology to develop new food products would further enhance numerous sectors of New Jersey's economy. Given the advantages New Jersey has in pharmaceuticals and food service, coupled with its large consumer base, the state is well poised to spur growth in food manufacturing while simultaneously bolstering these other sectors of the economy. Providing a favorable business climate with supportive economic policies will assist these sectors in developing and reaching their potential. Policies that support several sectors while not compromising environmental quality are desirable.

The New Jersey Department of Com-

merce and Economic Development (DCED) has already recognized the importance and special position of the food processing industry in the state. The DCED selected "Food and Beverage Processing and Distribution" as its "target industry" in late 1995. In its brochure for this program, the DCED indicated their commitment to provide custom services to address individual company and industry-wide needs. The department plans to address the following issues in its program: financing needs, by providing accessible and flexible financial support; regulatory and legislative concerns, by working to eliminate regulatory obstacles to industry growth; labor costs, by assisting in matching a company's needs with skilled workers at competitive wage rates; workforce training, by identifying employee skills training needs and helping firms obtain available state, federal, or community funding; energy-operational costs, by working with the state's utilities in analyzing power needs and energy cost-saving measures; waste management concerns, by working to provide creative less costly solutions for waste disposal problems; marketing and promotional opportunities, by providing national and international promotion of the industry; and technical assistance, by helping to introduce technological improvements in individual companies. Within the year of this target industry program, numerous food and beverage processing firms in New Jersey have been contacted and assisted in a variety of ways. In addition, several out of state companies have shown interest in doing business in New Jersey. This assistance program has been a help to the food manufacturing industry and is a step in the right direction for the state.

In summary, the state must recognize that the location of manufacturing facilities is no longer tied as strongly, as it has been in the past, to transportation access and proximity to large numbers of consumers. With extensive and efficient interstate transportation available to most parts of the country,

manufacturing facilities are increasingly looking to locate in areas with low cost advantages in such factors as land, energy, regulatory fees, permitting, taxes, insurance, labor, technical support, and financing. New Jersey is facing increasing competition from other states and regions of the country which offer lower costs of doing business and more supportive economic development assistance.

With policies aimed at improving the state's business climate and reducing some of the costs of doing business, New Jersey could capitalize on the locational, technological, and other advantages it offers food manufacturers. In this way, existing firms could remain and expand in the state and new food manufacturing business could be attracted.

# IV. Problems Facing the Food Service Industry

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The food manufacturing industry continues to decline in New Jersey. The state is also losing ground in this business sector vis-a-vis other states in the region and the nation. As part of the research process, focus groups of people representing various segments of the state's food manufacturing industry were convened to help in identifying critical and important issues and problems faced by the industry. The group was encouraged to focus on issues and problems that could be dealt with at the state level. Major areas of concern expressed by industry representatives, ranked in order of perceived importance, were: (1) regulation (Department of Environmental Protection, the permitting process, air pollution and water pollution control, solid waste disposal, and right-to-know laws); (2) taxation and fiscal issues; (3) development barriers and potential; (4) costs of doing business; (5) education, training, and labor quality; (6) public relations and image; (7) transportation; and (8) other issues (port dredging and energy deregulation).

## A. Regulations

### 1. *Department of Environmental Protection*

New Jersey's regulatory environment was viewed by industry representatives as one of the most stringent in the nation. They cited the regulatory environment as the most significant deterrent to industry growth in the

state. The food manufacturing industry willingly accepts the need for regulations to protect our environment; however, representatives find fault with the enforcement of these regulations. Enforcement of regulations by the Department of Environmental Protection (DEP) is perceived as punitive, given the agency's imposition of excessive fines and permit fees on industry. Whereas one might anticipate a regulatory approach designed to encourage compliance and correct violations, the current approach in New Jersey appears to focus on enforcement designed to generate revenue from fees and fines, rather than on the legislative intent of environmental laws and their subsequential regulations.

### 2. *The Permitting Process*

Permit acquisition in New Jersey was perceived to be extremely expensive and time consuming. It was also viewed as an inflexible and hostile process by industry representatives. The majority of permits are seen as nuisance permits, each requiring excessive paperwork coupled with a fee. While each permit alone does not severely hamper a company, in combination, the multitude of paperwork and fees add up to create major expense and aggravation. Furthermore, the time required to obtain permits is excessive and frequently results in lost operational time for manufacturing facilities. Even with the establishment of the 90-day rule whereby a permit must be issued within 90 days of the



submission of a “completed” application, it still often takes an additional six to nine months for the DEP to actually accept a completed permit application before the 90-day rule even begins to kick in. Industry representatives felt that many of these problems stem from the high rate of turnover among DEP staff, their subsequent lack of accountability, and their inability to be flexible in tailoring permits to the unique features of a specific industry. DEP was also criticized for poor internal communication and for lack of communication with, and knowledge about, the industry. Of particular concern was the impression that DEP personnel have limited knowledge of the flavors and extracts industry and often lump this industry in with manufacturers of chemicals and hazardous/toxic materials.

Industry representatives were further concerned about the multiplicity of bureaucratic levels involved in the construction permitting processes in New Jersey. These levels include state, county, regional, district, and local authorities. Each tier has some type of authority to review and approve development applications with separate, often duplicative, and sometimes inconsistent requirements and paperwork. One representative reported that 54 permits were required to initiate the construction of one building. Industry representatives reported that the multiplicity of state and local requirements lacks harmonization and is expensive, time consuming, and aggravating. They indicated that this situation discourages investment by food manufacturers for construction of new facilities and expansions and modernization of existing processing plants.

### **3. *Air Pollution***

While the industry recognizes the need for and supports regulations designed to control, air pollution, they view the majority of New Jersey's air pollution standards as more stringent than national standards. Higher standards effectively raise compliance costs

in the state and reduce the competitiveness of food manufacturing firms in New Jersey relative to industries located in other states. New Jersey's regulatory approach to air and other environmental pollution is perceived by industry representatives as more punitive than corrective. Rather than encouraging compliance, the DEP is viewed as a bureaucracy whose primary role appears to be fine and fee collection. Fees and fines for air pollution violations in New Jersey were cited by focus group participants as being exorbitant and at least 100 percent higher than those in all other states. One industry source indicated that some fines in New Jersey are 100 times greater than fines in other states such as Delaware. Industry representatives indicated the need for improved, low-cost, technology to reduce air pollutant emissions. To meet emissions changes in the Federal Clean Air Act, many New Jersey food processing companies must install expensive catalytic converters.

Furthermore, odor regulations were viewed as poorly defined in the state. Fines are levied for ordinary complaints regardless of intent or degree of violation. The enforcement of an odor offense was seen by the industry as arbitrary, as it is up to each health inspector's nose to determine whether the odor affects the “standard and quality of life” of the public. Allegedly, entire processing plants have been closed due to adverse public reaction to offensive odors, resulting in the loss of many jobs. There are currently no exemptions for odors created during food processing, even though some agricultural odors are exempt. Bakeries, which produce ethanol as a by-product, have been hard hit by these regulations, which may explain the marked decline of bakeries in the state.

New Jersey has adopted an approach of resolving air pollution problems which involves overregulating industry. Programs such as the Employee Trip Reduction Program (ETRP) are evidence of this. As means of reducing air pollution emissions from auto commuting, this program requires companies

with more than 100 employees to get workers to reduce rush hour trips by 25 percent through car pools, mass transit, or telecommuting. This places the burden on industry to reduce air pollution problems stemming from cars, the leading cause of air pollution in the state. California, for example, requires all state residents who drive automobiles to assume part of the responsibility of combating air pollution (e.g., imposing lower lead gasoline on consumers), as well as placing some of the burden on industry.

Rather than receiving assistance from the New Jersey Department of Transportation (DOT), industry had been handed dictatorial regulations. While New Jersey Transit has worked with several companies to establish additional mass transit bus routes for getting workers to manufacturing sites in such locations as the Meadowlands area, industry representatives cited the need for many more such arrangements. These arrangements could be greatly facilitated by the DOT if it cooperated with industry and provided incentives to mass transit companies. In southern New Jersey, many food processors in the relatively rural counties of Cumberland and Salem have been adversely affected by stringent clean air standards which are set for this region in association with the urban and congested city of Philadelphia.

Since the focus groups were held, Congress has passed a federal law which makes the ETRP a voluntary program to be implemented at the discretion of individual states if those states develop an alternative program which can effectively reduce emissions. The ETRP, which is now a voluntary program in New Jersey, provides tax incentives to employers choosing to participate. The food manufacturing industry welcomes this change that encourages sharing the burden of reducing auto emissions between both the public and industry.

#### **4. Water Pollution**

Industry representatives reported exces-

sive enforcement of clean water regulations. Fines are automatically levied for water pollution violations without consideration of intent nor magnitude of the infraction. Fines may reach \$20,000 per day for exceeding permitted effluent standards and sometimes 30-day fines are levied for a 1-day violation. Automatic fines of \$5,000 per day are levied when pH levels are exceeded. Similarly, companies experiencing occasional violations of water pollution standards over a short period have been fined, even when their average pollution over the period was within acceptable parameters. One company indicated being fined \$50,000 every 3 months for 3 1/2 years for not submitting Discharge Monitoring Reports (DMR) from a cooling tower for which a permit had been obtained prior to construction, but which had never been built and had never discharged a single drop of effluent water. Industry representatives reported that fines for grammatical or syntax mistakes on monthly DMR forms have been levied by the DEP. Another criticism involves the excessive length of time it takes to receive test results and the fact that, during this time, fines continue to accrue.

Industry representatives further argued that permit acquisition is an unnecessarily long, costly, and energy-consuming process. One processor indicated a waiting period longer than four years for a permit, while another participant represented a company whose handling of wastewater accounts for 20 percent of the company's total operating costs.

State discharge levels are often more stringent than federally set levels, as is the case with sodium. Industry representatives suggested that New Jersey's extremely low discharge level for sodium creates a significant problem for the clam processing industry because clams are naturally high in sodium. This situation could be greatly alleviated if sodium levels were brought more in line with federal levels. Furthermore, discharge levels are more stringent for factory wastewater

than that of sewerage authority plants, regardless of the additional treatment and dilution this water will receive once it reaches these plants. Compounding the issue is the fact that DEP is constantly revising water pollution regulations and inadequately communicates these changes to the industry.

Industry representatives felt that the DEP has placed its focus on computing fines and enforcement, rather than on the intent of the actual discharge levels set by the regulations. They felt that the enforcement of the Clean Water Enforcement Act is excessive in that penalties are based on "spikes" rather than on "per day weighted averages." Spikes on any one day are presumed to have occurred for 30 days and fines are issued accordingly.

Mandatory fines are also issued when permit violations occur even with nonhazardous materials, as is often the case in processing food. This has been especially problematic in the case of food-based fats and oils, common waste products of certain types of food processing, especially dairy processing. Progress was made when the environmental factor, upon which permit fees are based, was recently reduced, by the DEP, from a very high rating of 100 (used for petroleum-based oils) to the lowest rating of 1, for vegetable oils and animal fats and grease. However, sewerage authorities have placed limits on the discharge of animal fats and grease into the wastewater stream, claiming they are harmful, even though not toxic, and overload existing sewage treatment facilities. Such restrictions continue to treat some food processing wastes as potentially harmful and lead to the overregulation of such sectors as dairy processing. The food manufacturing industry supports recent proposals to change the Clean Water Enforcement Act that would lower penalties for those who violate pollution limits, but have otherwise tried to comply with the law, and who try to amend any adverse environmental impact.

Industry representatives also expressed

concern that New Jersey's existing wastewater infrastructure is insufficient and that the state underinvests in technology to improve wastewater recycling. Insufficient sewerage capacity and sewage treatment infrastructure are problems in the state, and even more so in the less populated areas of South Jersey. Furthermore, the industry representatives indicated a lack of state-level investments and planning for expanded sewerage capacity over the next 10 to 15 years. Another concern of the industry was that some companies are required to conduct their own pretreatment of wastewater from their plants prior to the water going into local treatment facilities. This is a particular problem in such areas as northern New Jersey where adequate land near processing plants on which to build these pretreatment facilities is in short supply.

Industry representatives felt that improved and lower cost technologies are needed to handle wastewater from food processing facilities in the state. They cited the need to provide funding to expand the use and development of membrane technology that filters out wastes from the water stream which can then be developed into marketable by-products. Some firms have already tried this technology with successful results. One problem cited by the industry is that different food products generate different wastes, thus requiring variations in the type of technology needed to reclaim by-products. For example, meat and dairy processing generate fats and oils, while bakeries and pasta processors generate starches that could be separate out of the wastewater. Furthermore, water quality regulation, permitting, and reporting are managed at the state level, thereby overriding much of the responsibility of local sewerage authorities to govern the regulation of water quality in their own districts.

## ***5. Solid Waste Disposal***

Industry representatives cited the inadequacy of landfills and the insufficient number of incinerators as problems facing the food

manufacturing industry. Similarly, they felt that there is inadequate capacity to handle processed food waste and compost on farmland. Odor is a problem with the application of clam waste to farmland, even though it is an excellent fertilizer. Focus group participants again reported that, despite some improvement, the permitting process is still too slow. Companies attempting to utilize innovative approaches to waste management are not being encouraged but, in fact, are being discouraged due to the imposition of restrictions. Industry representatives felt that there was a lack of technology-based solutions for handling solid waste from food processing, and a need for providing state support for technology development, both in the private and public sector. Industry representatives cited a lack of direction from the state regarding the handling of sludge, now that ocean dumping is no longer an option. Additionally, they felt that there is a lack of investment in the development of technology to handle and clean sludge generated during food processing. They felt that the state looks at food processing waste as a problem that needs to be regulated as opposed to a potential source of marketable by-products.

#### **6. *Right-to-Know Laws***

Right-to-Know laws pose unique problems for the flavors and extracts industry, where more than 1800 raw materials are used and where 200 to 300 materials are often mixed together in one batch to create a product. Currently, trade secrecy agreements must be issued for each batch even though all these materials are Food and Drug Agency (FDA) approved food additives. These ingredients are used in food and are neither hazardous nor dangerous in small quantities.

### **B. Taxation and Fiscal Issues**

Industry representatives cited high property taxes and utility taxes as key impediments to the success of industry. They argued

that taxes from industrial and commercial properties greatly subsidize residential services offered in municipalities. Specifically, they felt that the state has too many school districts (617 districts for 567 municipalities) and that services and administrative efforts are duplicated. They noted that New Jersey has the most school districts per capita in the nation. On the positive side, industry representatives commented that the corporate tax is reasonable and the workman's compensation program operates well in New Jersey relative to other states. Furthermore, the industry welcomes the current reductions in workman's compensation rates in the state.

### **C. Development Barriers and Potential**

Representatives of the food manufacturing industry expressed dissatisfaction with the Economic Development Authority (EDA). They cited that a 7 percent rate of interest on loans is not considered a bargain in New Jersey, relative to the lower interest (e.g., 3 percent) loans offered in such other states as North Carolina. Industry representatives further indicated that obtaining an EDA loan is conditional on hiring union labor. Considering that union wages are higher than non-union wages, and that the wage bill is substantial for most companies, forcing businesses to hire union workers imposes higher costs and subsequently provides a disincentive to apply for EDA loans. Furthermore, industry representatives indicated that EDA loans are generally unavailable to small businesses. In short, dissatisfaction was expressed with the EDA and loan applications were seen as more of a hindrance than a benefit.

The excessive and cumbersome permitting process in New Jersey was also cited as a significant hindrance to growth. Industry representatives argued that while other states actively encourage and support the retention and expansion of existing firms and the re-

cruitment of new businesses, New Jersey appears not to recognize the importance of business and has in fact adopted an attitude perceived as antagonistic. Many food processors in New Jersey indicate that the primary reason for remaining in the state is their high level of capital investment already in place. Without such ties to the state, many of them would leave New Jersey and establish businesses in other states. This is an issue of significant concern, the importance of which would increase over time as the age of New Jersey's physical plant increases.

Industry representatives reported little incentive for companies to conduct in-house research and development (R&D). They also indicated that New Jersey offers limited loan guarantees for smaller businesses to invest in R&D. Generally, the expense of constructing new plants (primarily due to permit fees) in New Jersey is extremely high vis-a-vis other states. As a result, it is both easier and cheaper to establish businesses in other states. Similarly, laws in the state requiring the payment of prevailing wages prevent subcontracting and effectively raise costs.

Industry representatives indicated that, whereas other states have government personnel to provide extensive technical assistance to industry to assist in their compliance with state laws and regulations, New Jersey offers no such programs. In contrast, North Carolina provides technical assistance to potential businesses for meeting regulations and handling the permitting process and, thus, fosters rapid establishment of new firms. Focus group participants indicated that New Jersey does not treat businesses like customers nor like clients. Furthermore, they cited that when the state does offer programs and services, adequate publicity and promotion is often lacking. Companies, therefore, are often not aware of what the state has to offer and do not know where to go for information regarding these programs. For example, many companies, primarily in northern New Jersey, were not aware that the NJDA has a

staff member who is available to assist food processors in a variety of ways and who liaises with the New Jersey Food Processors Association, the industry trade association.

Industry representatives felt that the state does not play an adequate advocacy role for the food manufacturing industry. They indicated New Jersey state representatives have not attended national trade shows, such as those held by the National Food Processing Association and the Institute of Food Technologists. Personnel from other state governments, including California, Illinois, and North Carolina, usually have booths at this trade show promoting food manufacturing products from their state. The industry has been encouraged by the recent inclusion of processed food products by the NJDA in their export trade promotions nationally and internationally.

It should be noted that since the focus groups have met, the New Jersey Department of Commerce and Economic Development (DCED) established a "target industry" program, in late 1995, aimed at the food and beverage processing industry. The goals of this program are to support the retention and expansion of existing in-state firms and to attract businesses from other states. As stated in their literature on this program, the department plans to provide custom services to address the following individual company and industry-wide needs: financing needs, by providing accessible and flexible financial support; regulatory and legislative concerns, by working to eliminate regulatory obstacles to industry growth; labor costs, by assisting in matching a company's needs with skilled workers at competitive wage rates; workforce training, by identifying employee skills training needs and helping firms obtain available state, federal, or community funding; energy-operational costs, by working with the state's utilities in analyzing power needs and energy cost-saving measures; waste management concerns, by working to provide creative less costly solutions for waste disposal problems;

marketing and promotional opportunities, by providing national and international promotion of the industry; and technical assistance, by helping to introduce technological improvements in individual companies. As indicated by the DCED, within the year of this targeted program, various food and beverage processing firms in New Jersey have been contacted and assisted in a variety of ways, including access to low interest loans. The DCED also indicated that many out of state companies have been attracted to do business in New Jersey. Further cited by the DCED are the linkages this program has helped establish with other state-level departments (such as DEP) and the view that the target industry program has been a step in the right direction for food manufacturing in New Jersey.

## **D. Costs of Doing Business**

Industry representatives indicated that the costs of doing business in New Jersey are extremely high, relative to other states. Already discussed are the excessive costs of regulatory enforcement with fees and fines, property taxes, utilities including electricity and water, and utility taxes (including a 13 percent gross receipts tax). In addition, insurance was cited as being both expensive and, in some cases, difficult to obtain. New Jersey has alienated insurance companies, making the cost of insurance high, compared with other states. Vehicle insurance on corporate fleet cars, for example, is nearly twice as expensive as similar insurance protection on personal cars.

With the third highest minimum wage in the nation (after Washington, D.C. and Hawaii), New Jersey labor is also expensive relative to other states. The cost of other factors of production, including water and utility costs, is similarly higher in New Jersey vis-a-vis other states. When added together, these high costs of doing business detract from the competitiveness of food manufacturers, as well as other firms, operating in New Jersey.

## **E. Education, Training, and Labor Quality**

Industry representatives expressed significant concern about the lack of sufficient numbers of qualified workers needed to fill lower skill and lower wage positions. Specifically mentioned was the poor work ethic and poor educational background of many entry-level employees. They felt that high schools are not adequately training non-college-bound students and are not instilling an adequate work ethic in the state's young people. Tardiness, irresponsibility, poor attitude, and poor discipline were a few of the criticisms and concerns expressed by industry representatives about industry's entry-level workforce.

On-the-job training of new employees is a time-consuming and expensive task which is exacerbated by the high turnover rate of labor in the industry of roughly 20 percent per year. One representative of the food processing industry estimated that out of 100 people interviewed for a job, 50 percent refuse to undergo a drug test, 25 percent of those taking a drug test fail, and a large percentage of the remainder that pass the drug test fail the written test. At the end of the process only about five people are hired, of which three typically do not report to work on the first day. Considering the turnover rate, this signifies a significant training cost associated with labor, an already expensive input. The severity of this problem is allegedly greatest in South Jersey. In contrast, it should be noted that industry representatives were satisfied with the abundant quantity of highly qualified labor to fill management-level positions in the state.

Flavors and extracts manufacturers indicated that they have additional difficulty finding trained chemical operators who understand chemistry in general, can work with weights and measures, and can use technical equipment.

## **E Public Relations and Image**

Focus group participants did not feel that the food manufacturing industry suffered from a bad image in the state, with the exception of flavors and extracts companies which are often erroneously associated with the chemical manufacturing industry. They perceived, however, limited public awareness of the food industry, as most people fail to realize that food-related activities in New Jersey rival the pharmaceutical and telecommunication industries in size. Industry representatives felt the state is not doing an adequate job of promoting the food industry. They also felt that the state does not act as an advocate for food processors operating in New Jersey and cited the lack of state-level representation at national and international food trade shows.

As already mentioned, Right-to-Know laws pose unique problems for the flavors and extracts industry, as they are treated by the regulatory community and the public as if they were the same as manufacturers of toxic and hazardous chemicals and products. In reality, all materials used by flavors and extracts manufacturers are FDA-approved food additives that are used in food and are neither hazardous nor dangerous in small quantities.

## **G Transportation**

Industry representatives expressed concern about the excessive traffic congestion in New Jersey and outdated road infrastructure. They argued that while the number of cars in New Jersey doubled between 1980 and 1995, the number of miles of road remained unchanged. Poor access to industrial parks was also cited as a problem in the state. They also indicated that New Jersey lacks sufficient public transportation options between the state's cities and for north/south connections within New Jersey because the majority of mass transit routes in the state are geared to-

wards providing access to New York City. These are needed to provide primarily urban-based employees with access to manufacturing facilities in such locations as other New Jersey cities, the Meadowlands, and western counties. Finally, it was expressed that coordination is also lacking in the trucking industry, as excessive numbers of trucks return empty after making out-of-state deliveries.

## **H Other Issues**

Since the focus groups were convened, a number of additional issues facing the food manufacturing industry have emerged. Two prominent ones are dredging of the state's ports and concerns about energy deregulation.

**The ports of New Jersey** are critical to the overall food manufacturing industry in the state, and to the flavors and extracts manufacturing sector in particular. Millions of pounds of food products and ingredients from around the world flow through the ports of New York and New Jersey for further distribution. Any interruptions in food shipments both into the state (imported food ingredients) and out of the state (exported finished manufactured food products and ingredients) would limit the ability of the industry to operate efficiently and competitively. Port Newark and Port Elizabeth have become so clogged with silt that they are too shallow for many of the large container ships. As a result, these ships, and the businesses that rely on them, are moving to other deep water ports along the East Coast that can accommodate them. In fact, several flavors and extracts firms have already relocated south to the deeper draft ports. The passage by New Jersey voters in November 1996, of the \$300 million bond act to dredge the state's ports and waterways is seen as an important measure for keeping these waterways viable and competitive and for keeping businesses dependent on the ports in New Jersey.

**Energy deregulation** has been taking hold across the country with movement towards a market driven approach to electricity and gas purchase and distribution. Two states, New Hampshire and Illinois, are already experimenting with competitive electric service models, and virtually all other states are exploring similar opportunities. Impending changes in the electric and gas utility industry could have significant impact on the costs, profits, and resulting viability of the food manufacturing industry in New Jersey because food manufacturing is highly energy intensive. With the introduction of competition into the energy markets, utility custom-

ers will have the same bargaining leverage that they have with suppliers in virtually all other areas of business.

Of concern to the industry is the handling of fixed or "stranded" costs which are investments already made by utility companies in building and financing plants and equipment. The degree to which these stranded costs are either assumed by the state or passed on to utility customers will have a marked effect on the potential savings from energy deregulation. If stranded costs are primarily recovered from utility customers, the savings to the food manufacturing industry from competition may be effectively negated.



# V Public Policy Recommendations

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New Jersey has recently implemented various initiatives and programs to improve the business climate and competitiveness of firms in the state. While most of these initiatives are not industry specific, many would certainly apply to the food manufacturing sector. The STARR report, released by the Business Ombudsman's office, details some of these policy reform initiatives. While some of the recommendations provided by representatives of the food manufacturing industry are already being implemented through these recent initiatives, this report presents the full scope of recommendations regarding issues that state government can address as suggested by industry sources.

It is important to note that the industry concerns above seem to indicate a significant gulf between policy makers and industry, especially in the areas of regulation and economic development initiatives. State government appears genuine in its interest in addressing industry problems. However, any serious attempt to address these problems must involve extensive dialogue, a great deal of listening on both sides, and a great deal of partnership. Industry needs to be directly involved in the policy making process. Of course, industry must also recognize that the state must balance the needs of industry against public health, safety, and economic concerns.

The following is a list of public policy recommendations generated by representatives of New Jersey's food manufacturing industry to create a more hospitable business cli-

mate in the state. These recommendations are directed at state government and can be seen as an indication of what industry would like to see. Therefore, these recommendations represent a good starting point for government/industry discussions and collaborations. Rutgers University remains committed to playing a role in assisting the fostering of greater government/industry collaboration.

## A. Regulations

Industry representatives recommended an evaluation of all regulations relevant to food manufacturing at the time they come up for review, which is every five years. Although industry is often asked for comment and input during these regulatory review periods, industry representatives would like to see action taken by DEP regarding their comments and suggestions as opposed to the blanket continuation of the current set of regulatory rules, as is usually the case. They further recommended that, in general, the state protect its industrial base from onerous pollution standards. More specifically, in cases where state standards exceed federal standards, representatives recommended that they be relaxed to the federal level. In addition, they recommended that the state should take steps to harmonize state, county, and local regulations statewide to provide a more unified operating environment. Similarly, they recommended that the state more clearly define its air, water, and solid waste pollution problems, solutions, and standards.

## **1. Department of Environmental Protection**

Industry representatives recommended that a Food Industry Ombudsman be established within DEP to assist the food industry with regulatory mitigation and compliance. They further recommended that DEP personnel attend Continuing Professional Education courses to help them better understand the specific and unique aspects of food and ingredient manufacturing. Industry representatives felt that the high turnover at the DEP contributes to a number of operational problems, such as a lack of accountability by personnel, a lack of effective intra- and inter-agency communication in Trenton, and a lack of adequate understanding of the technology on which regulations are often based.

In an attempt to reduce the high personnel turnover rate, industry representatives suggested paying highly trained DEP employees higher wages to effectively compete with the private consulting sector. This is a problem because the private sector often hires away competent and knowledgeable DEP employees. In addition, they recommended that DEP job titles be changed from such titles as "Enforcement Officer" to "Facilitator." Coupled with this title change is a suggested change in DEP personnel duties that would be geared more toward assisting industry in complying with rational environmental laws and regulations, rather than their current role of strict enforcement.

Industry representatives further suggested that money generated by DEP through its collection of fines and fees be placed into a general state fund, rather than back into DEP's operating budget, as was recently the case. They also recommended that a geographical or regional organization be adopted for DEP, as opposed to the current centralized structure in Trenton. These organizational changes would require directives from the DEP commissioner, and even the governor.

## **2. The Permitting Process**

Regarding the permitting process within DEP, industry representatives recommended an improvement in the publicity given to the Permit Information Assistance Program, which was established in 1993 to assist industry during permit acquisition. Many food manufacturing companies are neither aware of this program, nor how it can be of assistance. Along these lines, they recommended that New Jersey emulate the South, where many cities and states provide assistance to companies negotiating through the permitting process, whether it be for startup facilities for incoming companies or for expansion or modernization of existing operations. North Carolina's success in streamlining the permitting process should be examined, along with the role that the state plays in assisting industry in coordinating and negotiating through the red tape of the permitting process. Also recommended is that New Jersey enable the use of Jumbo Site Permits or Bubble Permits, rather than the continued sole reliance on individual permits. Along these lines, they further recommended that the state promote "source" permits over that of "site" permits.

Industry representatives recommended that the state strive to shorten the entire permitting process. They further recommended a significant reduction in the time it takes to merely complete a permit application, before the 90-day rule even begins to kick in. Industry representatives also recommended that New Jersey explore methods of shortening the permitting process, such as those used in New York State, where architects and engineers have been given the authority to inspect buildings and issue occupancy permits, rather than having to wait for approval from state and local officials. An additional recommendation was that permits be made more flexible by allowing them to be tailored to the specific and unique requirements of a particu-

lar industry. Industry representatives indicated that this is especially important when a firm is trying to implement pollution control technology, which should be operational immediately, as opposed to waiting a year to receive the necessary permit approval required before such environmentally beneficial technology can be utilized. Experimental permits were recommended for pilot food manufacturing projects to minimize red tape and enable quick startup where competitive pressures from firms in other states dictate that time is of the essence. Industry representatives further recommended the review and revision of Pinelands regulations and the definition of wetlands in light of permitting regulations.

Also recommended by the industry was a revision in the payment system for permit fees. Industry representatives suggested that a company pay the full fee only at the time a permit is actually issued. Under the current system, one-third of the fee is paid in advance, one-third in the middle, and the remaining third when the permit is actually issued. Industry representatives felt that this current system ties up too much of a firm's operating funds during this often lengthy process.

### **3. Air Pollution**

Regarding air pollution issues, industry representatives recommended that costs or burdens of maintaining clean air be shared equitably by all polluters, including all who drive automobiles. They indicated that since the majority of air pollution problems in New Jersey stem from automobile exhaust, as opposed to industrial pollution, industry should not be bearing the majority of the air pollution burden. The recent change in the Employee Trip Reduction Program, from mandatory to voluntary, is seen by the food manufacturing industry as a step in the right direction. The industry further supported the use of tax incentives to companies who are voluntary participants in this program. They also recommended that odor regulations be made

less arbitrary and that exemptions be provided to some food processors, as is done for some agricultural producers for which the periodic or occasional production of odors occurs during regular operational practices. They further recommend that air pollutant emission thresholds in the state be made more realistic and be brought more in line with federal standards. Industry representatives also recommended the need for state support in developing low-cost, improved technology to reduce air pollutant emissions from their food processing plants to meet changes in the Federal Clean Air Act.

### **4. Water Pollution**

With regard to water pollution issues, the industry recommended that local sewerage authorities assume the responsibility of regulating water pollution in their districts by managing the majority of reports and permits related to water quality, as is done in California. This, they indicated, would be an improvement over the current system of central management by the state. They recommended that state water pollutant discharge thresholds be made more realistic and be brought more in line with federal standards in those cases where state standards exceed federal standards, especially for such natural by-products as sodium, vegetable oil, and animal fats and grease. Further recommendations included a modification of mandatory fines for permit violations involving nonhazardous materials, which is often the case in many food processing situations.

Industry representatives also suggested the elimination of fines for grammatical or syntax errors on the monthly DMR reports. Industry representatives recommended a revision in the Clean Water Enforcement Act (CWEA) to a system where penalties are based on "per-day weighted-averages" of discharge levels over a month, as opposed to the current reliance on "1-day spikes" presumed to have occurred every day for 30 days. The focus of CWEA should be redirected to the

legislative intent of this environmental law and its subsequent regulations, rather than on the computation of maximum fines and enforcement. The food manufacturing industry supported recent proposals to change the CWEA that would lower penalties for those who violate pollution limits, but have otherwise tried to comply with the law, and who try to amend any adverse environmental impact.

Industry representatives recommended that the state, in conjunction with industry, develop long-range plans for handling wastewater and provide for improved sewerage infrastructure and wastewater technology in the state. Along these lines, they recommended the establishment of a state-wide wastewater treatment fund to spread out the significant cost of improving the state's wastewater treatment facilities across all users. This fund could be used by sewerage authorities to improve, update, and expand their facilities and capacity along with developing much needed improved wastewater technology. An additional recommendation was that the state assist seafood processors in adopting state-of-the-art technologies for treating processing effluent. Industry representatives also recommended the establishment of a public/private partnership of the state's food processors with government and universities aimed at developing improved and low cost wastewater recovery technology (e.g., membranes). This technology can be used to "mine" the waste stream and develop marketable products while reducing water pollution. State assistance to companies that are required to construct pretreatment facilities near their plant where land is in limited supply was also recommended.

### **5. *Solid Waste Disposal***

Regarding solid waste issues, the industry recommended that public/private cooperation be increased among government, industry, and universities to develop improved methods of disposing of nontoxic and non-

hazardous wastes and by-products from food processing. In many cases, university-based research is viewed as too slow to be able to resolve some of these waste issues, and it is deemed necessary to explore methods being used elsewhere in the country and the world to solve similar problems. Industry representatives recommended that special attention be paid to the disposal of seafood processing waste and by-products, with focus being placed on composting, land application, and pet food production, along with the development of a solution to the odor problem associated with handling this material. They further recommended that the guidelines on reporting and handling medical waste be reexamined. Long-range planning at the state level, in conjunction with industry and universities, is also recommended for the handling of solid waste from food processing and other facilities by landfills, incinerators, composting, and land application. Long-range planning for the handling of sludge from processed food was also recommended since ocean dumping is no longer an alternative. Furthermore, development of improved technology to handle and clean food processed sludge was recommended by industry representatives.

Industry representatives highlighted the need to redefine food processing waste (solid, water, and sludge) in terms of by-products, thereby reducing the volume entering the waste stream while developing marketable products. They recommended that the state offer incentives to firms to "mine" the waste stream and provide both private and public assistance for the development of waste reclamation technology and commercializable products from the recovered by-products. State support to promote the formation of public/private partnerships which would build pilot plant facilities to focus on developing and commercializing technical solutions to waste problems in food manufacturing was also recommended.

## **6. Right-to-Know Laws**

Industry representatives suggest that Right-to-Know laws be revised to allow for exemptions or modifications, due to the unique nature of the flavors and extracts industry. This industry, where a large number of ingredients are used in various combinations and mixtures for each batch, is currently subject to extensive Right-to-Know reporting requirements. These requirements are the same as those required in the chemical industry. The industry cited that the difference, however, is that flavor and extract ingredients are nontoxic, FDA-approved food additives, which should not be considered hazardous or dangerous in small quantities since they end up in food anyway.

## **B. Taxation and Fiscal Issues**

Industry representatives recommended that the state mandate the consolidation and regionalization of school districts and other services where Home Rule imposes redundancy. They also recommended that the state develop tax incentives for manufacturers to improve on-the-job training.

## **C. Development Barriers and Potential**

Industry representatives recommended that the state provide loan guarantees to small businesses and small expansion projects. They also recommended that the state develop incentives to encourage research and development, new businesses, and venture capital projects. Such incentives could include beneficial tax programs, loan programs, and Enterprise Zones. Additional recommendations from the industry are for the improved promotion by the state of programs to stimulate economic development and the provision of lower cost loan programs at such rates as 3 percent, rather than the rate of 7

percent. The recently passed "Business Employment Incentive Program" under which companies could receive grant monies from the state over a ten-year period when they create more than 75 new jobs or 25 new jobs in economically depressed areas offers incentives in this direction for companies planning on growth. It does not address firms needing assistance to continue their current level of operation.

Industry representatives suggested that the state adopt a more customer-client-oriented approach towards working with industry and other businesses in New Jersey. Along these lines, they suggested that the state should better promote and publicize the programs and services that they offer to industry. They recommended the development of a state program resource book that would list the various programs and services available to industry along with names, addresses, and phone numbers of state personnel to contact for further information. Along these lines, they recommended better promotion of the services provided by the NJDA in assisting food processing firms and in liaising with the New Jersey Food Processors Association.

Industry representatives also recommended that the state work with industry to form an Industrial Development Agency to advocate for industry in general and for the food industry specifically. They suggested that the state work with industry to assist in expanding New Jersey's food manufacturing market share. Representation by state personnel at national and international trade shows was recommended, as is done by such other states as California, Illinois, and North Carolina. Recent inclusion of New Jersey processed food products, along with agricultural products, by NJDA personnel in export development programs and promotions was applauded by the industry representatives. To further promote the use of New Jersey products, they suggested that state institutions give priority to food produced or pro-

cessed in New Jersey, where it is available, as a substitute for imported food. This recommendation is consistent with current legislative proposals to promote New Jersey commerce.

The industry supported a continuation of the “target industry” program recently established by the Department of Commerce and Economic Development (DCED) for the food and beverage processing industry to provide custom services for addressing individual company and industry-wide needs. They would like to see additional support for the efforts of the DCED, including the following activities as stated in their “target industry” brochure for the food and beverage processing industry: financing availability, by providing accessible and flexible financial support; regulatory and legislative reform, by working to eliminate regulatory obstacles to industry growth; labor cost reductions, by assisting in matching a company’s needs with skilled workers at competitive wage rates; workforce training, by identifying employee skills training needs and helping firms obtain available state, federal, or community funding; energy-operational cost reductions, by working with the state’s utilities in analyzing power needs and energy cost-saving measures; waste management concerns, by working to provide creative less costly solutions for waste disposal problems; marketing and promotional opportunities, by providing national and international promotion of the industry; and technical assistance, by helping to introduce technological improvements in individual companies. The fine-tuning and improvement of this program would further help the food manufacturing industry.

## **D. Costs of Doing Business**

Industry representatives recommended that New Jersey support efforts in Washington to reduce tariffs on products from the United States that are sold in foreign coun-

tries. They also recommended that a summit meeting between the food processing and insurance industries be convened to resolve insurance cost and availability problems. A re-examination of utility costs and utility taxes were also recommended by industry representatives.

## **E. Education, Training, and Labor Quality**

Industry representatives recommended that a partnership be formed between the statewide education system and industry to improve educational standards, with the goal of better serving the employment needs of our state’s businesses. More specifically, they recommended the establishment of a government sponsored taskforce between New Jersey Departments of Labor, Education, and Commerce and Economic Development and industry to jointly train employees for the state’s workforce of today and tomorrow.

The industry representatives further recommended that the state develop tax incentives and allocate supplemental funding for processors to implement on-the-job training, apprenticeships, and vocational programs. It was suggested that such programs are needed for training chemical operators, laboratory technicians, and other food processing personnel working at the plant level. This training is especially important for flavors and extracts manufacturers for whom the value of inputs is extremely high and where small mistakes can be extremely costly. To this end, the flavors and extracts industry recommended the development of a Chemical Operator Certificate Training Program at the vocational and/or post-high school level. Also recommended by industry was the use of such state-industry funded pilot plants as the CAFT/FMT facility at Rutgers University to train chemical operators, technicians, and other food processing personnel.

## **E Public Relations and Image**

Industry representatives recommended a state promotional program highlighting the importance of the food industry as a key component of New Jersey's economy. The importance that the state act as an advocate for New Jersey food manufacturing, and all business in the state, was discussed. Along these lines, industry representatives recommended the promotion of the industry by the state at food manufacturing and other product trade shows nationally and internationally. They also recommended that employment and business opportunities in food manufacturing be better publicized. In regard to the flavors and extracts sector, they recommended a public education program to highlight the benefits and improvements to the quality of foods and life that these products have provided through the use of chemistry. The plastics industry has accomplished a similar goal through advertising. Furthermore, the industry suggests that this flavors and extracts industry publicity campaign attempt to dissociate the industry from the chemical industry, which manufactures toxic and hazardous products and waste materials.

## **G Transportation**

To allow for better access of the state's labor force to manufacturing facilities, industry representatives recommended an increase in public transportation services between New Jersey's cities and new food manufacturing employment locations including the Meadowlands and western counties. This

primarily involves an improvement in north/south public transportation alternatives. Also recommended was the construction of a train route to Newark airport and an improvement in the access to New Jersey's industrial parks. Improved coordination in the trucking industry was also suggested as many trucks return empty after making out-of-state deliveries.

## **H Other Issues**

Regarding **port dredging**, the passage by New Jersey voters in November 1996, of the \$300 million bond act to dredge the state's ports and waterways is seen as an important measure for keeping these waterways viable and competitive and for keeping port-dependent businesses in New Jersey. In light of this, the food manufacturing industry recommended that dredging of Port of Newark/Elizabeth and approaching waterways be commenced as soon as possible to stem the tide of firms moving out of state to more southerly, deep water draft ports.

Regarding **energy deregulation** in the electric and gas utility industry, industry representatives recommended the availability of effective competitive access to electric markets as soon as practical in New Jersey. A competitively priced energy market in New Jersey could be a cost advantage for food manufacturing firms operating in the state. They further suggested that the burden of "stranded" costs be handled in such a way that the savings resulting from energy deregulation and competition will not be effectively negated.

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# Appendix: Industry Statistics<sup>1</sup>

## Food Processing (SIC 20) in New Jersey

### Employment (Number of Paid Employees)

	1967	1972	1977	1982	1987	1992	% Change (1987-92)	% Change (1967-92)
<b>SIC 20</b>	60,500	53,700	43,200	39,100	36,100	33,500	-7.20	-44.63
<b>SIC 201</b>	4,900	5,200	4,400	4,900	4,100	4,600	12.20	-6.12
<b>SIC 202</b>	4,700	3,000	2,600	2,600	3,100	3,400	9.68	-27.66
<b>SIC 203</b>	10,400	10,000	7,700	6,700	6,300	4,700	-25.40	-54.81
<b>SIC 204</b>	1,300	1,000	900	700	N/A	700	N/A	-46.15
<b>SIC 205</b>	13,500	11,800	9,300	7,900	8,200	7,300	-10.98	-45.93
<b>SIC 206</b>	3,000	3,800	3,100	2,500	2,600	2,200	-15.38	-26.67
<b>SIC 207</b>	N/A	N/A	1,500	N/A	N/A	800	N/A	N/A
<b>SIC 208</b>	11,000	9,200	7,400	6,300	4,000	5,100	27.50	-53.64
<b>SIC 209</b>	10,500	7,600	6,300	6,400	6,000	4,900	-18.33	-53.33

### Establishments (Number)

	1967	1972	1977	1982	1987	1992	% Change (1987-92)	% Change (1967-92)
SIC 20	948	864	753	621	589	567	-3.74	-40.19
SIC 201	114	116	73	75	73	71	-2.74	-37.72
SIC 202	127	89	78	67	68	58	-14.71	-54.33
SIC 203	117	95	95	69	57	55	-3.51	-52.99
SIC 204	37	31	32	25	25	18	-28.00	-51.35
SIC 205	204	185	154	125	123	147	19.51	-27.94
SIC 206	59	58	50	41	46	40	-13.04	-32.20
SIC 207	N/A	28	22	16	12	10	-16.67	N/A
SIC 208	149	140	106	90	70	69	-1.43	-53.69
SIC 209	140	122	120	113	115	99	-13.91	-17.86

<sup>1</sup> For annual information on the industry, please contact Dr. Adesoji Adelaja, Department of Agricultural Economics and Marketing, Rutgers University.

**Value of Shipments**

(\$million)

	1967	1972	1977	1982	1987	1992	% Change (1987-92)	% Change (1967-92)
SIC 20	3,193	3,849	6,073	8,041	9,030	9,645.3	6.81	202.08
SIC 201	391	510	649	864	743	897.5	20.79	129.54
SIC 202	255	272	440	778	1,063	1,458.2	37.18	471.84
SIC 203	403	538	804	1,195	1,607	1,635.3	1.76	305.78
SIC 204	92	78	155	143	N/A	178.1	N/A	93.59
SIC 205	382	480	657	920	1,018	1,124.2	10.43	194.29
SIC 206	223	218	437	657	881	737.2	-16.32	230.58
SIC 207	N/A	N/A	N/A	N/A	N/A	336.6	N/A	N/A
SIC 208	544	681	984	1,514	1,616	2,222.9	37.56	308.62
SIC 209	966	839	1559	1,672	1,600	1,055.3	-34.04	9.24

**Value Added**

(\$million)

	1967	1972	1977	1982	1987	1992	% Change (1987-92)	% Change (1967-92)
SIC 20	1,257	1,513	1,996	3,266	4,193	4,515.6	7.69	259.24
SIC 201	70	112	111	180	205	248.0	20.96	254.29
SIC 202	75	71	91	185	288	418.6	45.35	458.13
SIC 203	159	191	331	535	843	898.7	6.61	465.22
SIC 204	25	17	57	35	N/A	67.9	N/A	171.60
SIC 205	211	282	368	606	691	715.7	3.57	239.19
SIC 206	50	96	144	281	379	379.1	.03	658.20
SIC 207	N/A	N/A	N/A	N/A	N/A	111.3	N/A	N/A
SIC 208	285	212	402	703	873	1,215.2	39.20	326.39
SIC 209	359	361	367	695	702	461.1	-34.32	28.44

**Payroll**  
(\$million)

	1967	1972	1977	1982	1987	1992	% Change (1987-92)	% Change (1967-92)
SIC 20	422	506	596	792	917	1,023.7	11.64	142.58
SIC 201	35	49	56	85	84	111.1	32.26	217.43
SIC 202	33	30	38	54	85	119.6	40.71	262.42
SIC 203	60	80	94	125	158	134.7	-14.75	124.5
SIC 204	10	8	11	14	N/A	24.2	N/A	142.00
SIC 205	84	104	124	156	197	201.6	2.34	140.00
SIC 206	16	38	39	56	75	81.9	9.2	411.88
SIC 207	N/A	N/A	N/A	N/A	N/A	21.8	N/A	N/A
SIC 208	92	98	120	152	128	204.4	59.69	122.17
SIC 209	81	75	90	131	146	124.4	-14.79	53.58

SIC 20 Food and Kindred Products

SIC 201 Meat Products

SIC 202 Dairy Products

SIC 203 Canned, Frozen, and Preserved Fruits, Vegetables, and Food Specialities

SIC 204 Grain Mill Products

SIC 205 Bakery Products

SIC 206 Sugar and Confectionery Products

SIC 207 Fats and Oil

SIC 208 Beverages

SIC 209 Miscellaneous Food Preparations and Kindred Products

N/A represents data Not Available since data was withheld to avoid disclosing data for individual companies. Data are included in higher level totals.

Source: New Jersey Census of Manufacturers, various census years.

