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**An Inter-Sector Impact of Hurricanes Katrina and Rita On The Agribusiness Industry In Mississippi**

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## **ABSTRACT**

This study evaluates the impact of hurricanes Katrina and Rita on the agribusiness industry and related sectors in Mississippi. Input-output analysis was used to determine the economic impact of these disasters on the Mississippi agribusiness sector and related sectors in the state's economy.

Keywords: agribusiness, economic impact, input-output analysis, temporal effects, agribusiness sector, related sectors.

# **An Inter-Sector Impact of Hurricanes Katrina and Rita On The Agribusiness Industry In Mississippi**

## **INTRODUCTION**

Agribusiness plays a vital role in the economic development of a state and nation. In some countries, the agribusiness sector may account for a sizeable portion of the gross domestic product. In the United States, agribusiness accounts for about 15 percent of the gross domestic product (The Facts on U.S. Farm Policy, 2002).

The term “agribusiness” is often confused with large-scale commercial farming. In fact, agribusiness encompasses on-farm and off-farm activities from the production to the commercialization of agricultural products, such as post-harvest handling, processing, marketing, and related commercial activities. Agribusiness activities are carried out by “agro-enterprises,” a term commonly used to refer to private, non-farm enterprises engaged in these activities. Agribusiness takes place within the agro-food system, which consists of interdependent sets of enterprises, institutions, activities, and relationships that collectively develop and deliver material inputs to the farming sector, produce primary commodities, and subsequently handle, process, transport, market, and distribute food and other agro-based products to consumers. (Agro-Food Systems, 2006)

More than 95 percent of the food consumed in the United States today is manufactured, processed, packaged, and advertised by agribusiness firms. In the United States, most people are well-fed and take ready access to food for granted. This may explain why few Americans are aware of the concentration of monopoly power in the U.S. food system and its consequences (Corporate Agribusiness, 1993).

A few statistics reveal the extent of that concentration. Cargill, the largest private (family-owned) corporation in America, is also the world's largest grain trader. Cargill and Continental Grain together control 50 percent of all grain exported from the United States. Cargill has also become the second-largest meat packer in the country. Cargill, Iowa Beef Processors, and ConAgra together slaughter close to 80 percent of all the meat slaughtered in the United States. Four companies—General Foods, General Mills, Kellogg's, and Quaker Oats—dominate almost 90 percent of an ever-growing cold cereal market. This enormous market power has made agribusiness corporations the most profitable industrial sector in the United States (Corporate Agribusiness, 1993).

The destruction caused by hurricanes Katrina and Rita affected just about every sector of Mississippi's agricultural industry (Anderson, et al., 2005). This destruction will significantly impact the agribusiness industry in the coming years. Farmers in the state will have to make difficult decisions and become more than just managers of production processes or farms; they must become managers who focus on business strategy (Myles et al, 2006).

The heavy losses from disasters in 2005 will require huge federal support if this industry is to remain viable in an increasingly global and competitive agricultural world (Myles et al, 2006). As a result, some policymakers may ask: "What are the direct and indirect impacts on agribusiness from these disasters, and how will they impact related industries in the state in the long term?" To answer these questions, this paper focuses on those sectors that sell inputs to and buy commodities from the food and fiber sector impacted by this natural disaster. Specifically, this study analyzed farm losses in poultry, processed meats, forestry, crops, and livestock on the agribusiness sector and related sectors in Mississippi.

## **Natural Disasters And Damages**

Mississippi enjoys fairly predictable weather patterns throughout the year. The weather is extremely hot during the summer and fairly mild during the winter. Rarely does the state experience prolonged periods of cold, drought, or rain.

Although Mississippi has had its share of hurricanes, never has the state been so impacted by weather-related events as it was in 2005. When hurricanes Katrina and Rita struck the Mississippi Gulf Coast and other areas of the state in August 2005, they were the most destructive hurricanes to ever hit the United States. Katrina and Rita caused damages exceeding \$2 billion in agriculture alone. Some of these damages will take 15 to 20 years to recover. In contrast, Hurricane Camille devastated the Mississippi Gulf Coast, killing more than 150 people and destroying millions of dollars in property. It took the state several years to recover from that disaster in 1969.

The timber industry was hit hardest by these disasters, with damages exceeding \$1 billion in lost trees and damage to trees. Katrina and Rita also hit the poultry industry and row crops. Preliminary damage estimates were between \$110 million and \$132 million for poultry and about \$145 million for row crops, which included cotton, corn, rice, soybeans, and grain sorghum. The beef industry experienced losses between \$85 million and \$110 million, while the catfish industry had losses of \$102 million. Damages to the poultry and timber industries were high because production from these industries is concentrated in the southern part of the state, the area where the hurricanes made landfall and had the most destructive punch.

## **Overview of the Agribusiness Industry**

The Mississippi agribusiness industry is a multi-billion dollar integrated enterprise in the state. In 2002, the agribusiness industry was a major component of the Mississippi economy. During this period, agribusiness contributed 364,806 jobs, or 25.2 percent to the state's employment. That was, nearly one in four jobs could be attributed to agribusiness in Mississippi. In that same year, agribusiness paid \$6.6 billion in wages or 15.17 percent of total state labor income (employee compensation + proprietor income) in 2002. The agribusiness industry also created almost \$10.9 billion of value added income or 16.62 percent of total value-added in the state. This suggested that about \$1 out of every \$6 in value added could be attributed to the state's agribusiness industry. Appendix B, Tables 1 through 4 contains details of these impacts in the study. Agribusiness produced employment in all 38 aggregated sectors with one in six or 15.87 percent of all agribusiness jobs occurring in five sectors. Those sectors in rank order were: food and beverages, miscellaneous services, furniture, processed meats, and other livestock enterprises.

It should be noted that most of the income attributable to agribusiness activity was generated by non-agriculture sectors.

Agribusiness direct impact on the state economy is the sum of farm production and further processing of farm products in Mississippi. In 2002, there were 168,136 workers employed in the production agriculture and processing sectors. Four sectors in rank order accounted for 133,089 or 79.15 percent of all agricultural workers in Mississippi. Of these, forestry had the largest number of workers with 53,173 employees or 31.63 percent of all agricultural employment in Mississippi. Poultry and processed meats and eggs had 32,402 (or

19.27 percent) employees. The crops industry was third with 24,607 workers or 14.64 percent, while livestock accounted for 22,907 employees of agricultural workers. Combined, these workers and owners of these farms and businesses received more than \$2.94 billion in labor income compared to labor income of \$3.684 billion for non-agribusiness industries. In terms of value added, forestry, poultry and processed meats and eggs, livestock, and crops directly contributed more than \$4.56 billion to the state's economy compared to \$5.56 billion for non-agriculture industries.

### **Purpose and Objective**

This study was conducted to clearly define the agribusiness industry and tease out its economic importance to Mississippi. Specific objectives were to (1) identify the major elements of the agribusiness sector, (2) determine the total economic impact of the agribusiness industry and related sectors in Mississippi, (3) determine specific estimates of economic impacts for individual sectors of the state's agribusiness industry, and (4) determine the potential short-, intermediate-, and long-term effects of these disasters on the agribusiness industry and the rest of the state's economy.

### **Data Sources**

The main sources of data for the analysis were the Mississippi Department of Agriculture and Commerce (MDAC) and the IMPLAN 2003 data set for Mississippi counties. The data on economic losses from MDAC were compiled by experts from the Mississippi State University Agricultural Economics Department and state and federal agencies, and were considered preliminary. Thus, the final values of these estimates may have changed from the author's data set.



### **Methods, Procedures, And Aggregation Scheme**

Natural disasters like hurricanes Katrina and Rita typically create two types of major economic effects: destruction of property and disruption of the flow of production, income, and spending in the economy (BEA, 2005). Because the impacts of these events were so extensive, the rebuilding of the infrastructure in the Gulf Coast region will span many months and years.

The IMPLAN input-output model was used to measure economic interdependences of selected sectors in Mississippi agribusiness. IMPLAN is one of the most widely used input-output models in the nation (Lindall and Olson). IMPLAN is a nationally recognized modeling system based on county-level data and is of sufficient depth and breadth of detail to be valuable in the analysis of a specific industry's importance in an economy (Mubarak Hamed, 1994).

However, caution must be taken when using the input-output model to analyze the impacts of natural disasters because these events may cause significant structural changes to the local economy. Regional multipliers reflect the industry linkages in a local economy at a given time, and so are best used to study less catastrophic events where those linkages are, for the most part, preserved (BEA, 2005). In the case of Mississippi, the IMPLAN input-output model was deemed an appropriate methodology to use since the damages did not result in major changes to the overall structure of the state's economy.

Estimates of economic losses were incorporated in the model as short-, intermediate-, and long-term effects. These classifications were based on three criteria: insurability, level of destruction, and time needed to replace losses. These data provided enough information to populate the model and measure the direct and induced economic impacts in the industry.

To provide a compact presentation of this complex system, the authors collapsed the 509 IMPLAN sectors into 39 major sectors using methods similar to Popp et al (2005). The agribusiness components are in 38 sectors, while the remainder of the economy is aggregated into the sector called “Rest of Mississippi.” Appendix A, Table 1 shows the 38 aggregated sectors and the sectors they represent in the IMPLAN model.

With this model and approach, the effects of natural disasters on output, income, and employment can be measured. The impacts were estimated by evaluating the direct, indirect, and induced impacts of this disaster on the agribusiness industry in Mississippi. These included output, employment, income, taxes, and key sectors impacted by these natural disasters. The sum of the effects provided a measure of the total effects caused by natural disasters on selected sectors of the Mississippi agribusiness industry. The results may provide a model and procedures applicable to other states and regions of the country that are susceptible to hurricanes and other natural disasters.

## **RESULTS**

The impact of hurricanes Katrina and Rita in Mississippi was much more than the direct impact on the agribusiness industry. To measure the total impact of these two hurricanes on the Mississippi agribusiness industry, the indirect and induced impacts of agribusiness were taken into consideration. Indirect impacts occur when the agribusiness industry purchases goods and services from local businesses. Agribusiness induced impacts are measured by increases in economic activity to satisfy the personal consumption by employees of the agribusiness industry or by employees of firms that provide inputs to the agribusiness sector. The sum of direct, indirect, and induced agribusiness effects provides a measure for the total economic impact of the agribusiness industry in the state.

### **Base Model**

The total impact of agribusiness activities on Mississippi's labor income (employee compensation plus proprietor income) was \$7.24 billion in 2003. A summation of the top five earnings impacts in 2003 were as follows in rank order: (1) food and beverages, \$1.44 billion, (2) miscellaneous services, \$924 million, (3) furniture, \$889 million, (4) forest products, and (5) wood processing, \$519 million.

In 2003, \$32.4 billion, or about 83 percent of all wages, went to workers in non-agribusiness enterprises. Within the agribusiness industry, employees in the furniture, processed meats and eggs, wood processing, building materials, lawn and garden, paper processing, and textile machinery, equipment, apparel, and manufacturing sectors received \$2.83 billion, or 42.91 percent, of wages generated.

The impact of agribusiness on business expenses in the state totaled \$7.5 billion, or nearly 11.43 percent of all expenses. Within the agricultural sectors, furniture, processed meats and eggs, wood processing, paper processing, agricultural and forestry services, and farm input and machinery businesses accounted for \$2.55 in business expenses, or about 34.55 percent of all expenses generated in the state's economy. In terms of business revenues, these five sectors accounted for about \$11.64 billion of the state's total revenues.

### **Temporal Effects**

Appendix B, Tables 2 through 4, contain detailed information on the temporal effects of hurricanes Katrina and Rita on the Mississippi agribusiness industry. Table 1 provides a summary of these effects on the agribusiness industry and the state's economy.

**Table 1. Net Change in Agribusiness and Mississippi Economies Due To Hurricanes Katrina and Rita**

Scenario	Employment	Business Revenues	Business Expenses	Labor Income	Other Property Income	Total Value Added
<b>BASE MODEL</b>						
Agribusiness Industry	364,806	\$29,366	\$7,501	\$7,240	\$2,766	\$10,902
Mississippi	1,443,566	125,857	43,673	43,529	17,397	65,594
<b>SHORT RUN</b>						
Agribusiness Industry	(212)	(36,395,369)	(3,199,901)	(3,611,911)	(8,926,420)	(12,852,555)
Mississippi	(282)	(44,292,219)	(5,788,818)	(6,015,489)	(10,642,888)	(17,479,574)
<b>INTERMEDIATE RUN</b>						
Agribusiness Industry	(26,612)	(1,554,519,667)	(277,146,416)	(347,590,400)	(339,664,149)	(714,070,326)
Mississippi	(31,021)	(2,054,305,489)	(425,282,479)	(142,265,144)	(451,875,077)	(998,527,237)
<b>LONG RUN</b>						
Agribusiness Industry	(19,465)	(1,679,503,519)	(419,949,191)	(501,871,385)	(298,293,630)	(867,196,068)
Mississippi	(21,957)	(1,877,070,384)	(76,996,927)	(583,356,722)	(323,687,632)	(984,239,074)

Source: Summarized from Appendix B, Tables 1 through 4.

The short-term impacts were fairly small, primarily because the economic shocks had not worked their way through the system. The results suggested that business revenues in the agribusiness industry could decline by almost \$36.4 million during the first year after the hurricanes, while business revenues statewide could decline \$44.29 million. The model suggested that labor income could decline \$3.6 million and \$6.02 million, respectively, in the agribusiness industry and state economy during this period. The results further suggested that agribusiness expenses could decline almost \$3.2 million, while business expenses statewide could decline almost \$5.79 million during the first year after hurricanes Katrina and Rita. Because of heavy property losses, the model projected that income from other property sources could decline almost \$9 million in the agribusiness industry in Mississippi. Adding this figure to the impact in the rest of the state suggested that other property income could decline more than

\$10.6 million in the first year after the hurricanes in Mississippi. The impact on agribusiness employment was nil, declining by 212 jobs versus 282 jobs statewide. In terms of contributions to the state's gross domestic product, the model projected that value-added from agribusiness could decline more than \$12.8 million immediately after the hurricanes. Statewide, this figure rose to almost \$17.5 million during this period.

Appendix B, Table 3 shows the intermediate (three- to seven-year) effects of these disasters on the agribusiness industry and the state's economy. These impacts were more significant because the economic shocks of the disasters should have begun to manifest themselves in the state's economy. Under this scenario, the results suggested that agribusiness revenues could decline almost \$1.6 billion, while business revenues statewide would decline more than \$2 billion during the next three to seven years after the hurricanes. The model suggested that labor income could decline almost \$347.6 million and \$142.3 million, respectively, in the agribusiness industry and state economy during this period. The results also suggested that agribusiness expenses could decline almost \$277.15 million, while business expenses statewide could decline almost \$425.3 million during the intermediate years after Katrina and Rita. Income from other property is projected to decline almost \$440 million in the agribusiness industry in Mississippi. Adding this figure to the impact in the rest of the state suggested that other property income could decline almost \$452 million in the first three to seven years after the hurricanes in Mississippi. In terms of contributions to the state's gross domestic product, the model-projected total value-added from agribusiness could decline more than \$714 million during the next three to seven years after the hurricanes. Statewide, this figure rose to almost \$1 billion during this period.

The long-term effects of these hurricanes on the state's agribusiness industry and the Mississippi economy are found in Appendix B, Table 4. The long-term impacts were similar to the intermediate-term effects, but there were some differences. Agribusiness revenues are projected to decline another \$125 million in the long term, while business revenues statewide improved significantly, increasing more than \$177 million during this period (see Table 1). The results suggested that agribusiness expenses would continue to decline by almost \$142.8 million to \$425.3 million. Statewide, business expenses showed significant improvement, increasing \$348.3 million for a net loss of \$76.8 million in the long term.

The model suggested that labor income in the agribusiness industry would continue to experience heavy losses, declining another \$154.3 million to \$501.9 million over the next 10 to 15 years. Statewide, labor income is projected to decline an additional \$81.5 million for a total reduction of \$583.4 million during this period. Because much of the property losses were in timber and poultry industries, the model projected that agribusiness income from other property sources would decline an additional \$242.4 million to \$340 million over the intermediate-term scenario in Mississippi. Adding this figure to the impact in the rest of the state suggested that other property income in Mississippi could decline almost \$452 million over the next 15 years due to these hurricanes. In terms of contributions to the state's gross domestic product, the model-projected total value-added from agribusiness activities could decline another \$153.1 million to about \$867 million more in the long run. However, statewide total value-added rose about \$14.3 million during this same period. In total, value-added is projected to decline \$984.2 million over the next 15 or so years. Compared to 2005, this would be about 1.02 percent of gross domestic product in Mississippi.

## Summing Up

The broad impacts of hurricanes Katrina and Rita on the agribusiness industry are reflected in the 38 sectors and the distribution of selected indicators in the Mississippi economy. The combined impact of these disasters is projected to reduce business revenues from agribusiness and related industries by almost \$1.9 billion over the next 15 years in Mississippi. Employment is expected to decline by 21,957 jobs in agribusiness and related industries, or 1.52 percent of total employment in the state, during this period. Of this, 19,465, or 88.65 percent, are projected to occur in the agribusiness industry during this period.

The impact of hurricanes Katrina and Rita on labor income is projected to exceed \$583 million in losses statewide. Of this, more than \$502 million will comprise labor income in the agribusiness industry. Dividing workers' portion of labor income (\$351,882,015) by the number of lost jobs (21,957) suggests the average earnings potential of those employees would be about \$16,026 annually.

The impact of hurricanes Katrina and Rita on indirect business taxes is expected to reduce these costs by more than \$77 million in the long run. Income losses from other real and personal property are projected to be \$324 million during the coming years. Public finances to local and state governments are projected to decline almost \$183 million during the next 15 years because of these hurricanes in Mississippi (Table 2).

**Table 2. Potential Impact of Hurricanes Katrina and Rita on Tax Receipts in Mississippi**

<b>Tax Item</b>	<b>Short Run</b>	<b>Intermediate Run</b>	<b>Long Run</b>	<b>Total</b>
Corporate Profits Tax	\$ (108,266)	\$ (4,596,772)	\$ (3,292,764)	\$ (7,997,802)
Dividends	(417,654)	(17,732,708)	(12,702,312)	(30,852,674)
Indirect Business Tax				
Sales	(461,266)	(31,902,680)	(43,360,298)	(75,724,244)
Property	(206,767)	(14,300,673)	(19,436,657)	(33,944,097)
Other	(66,998)	(4,633,824)	(6,298,028)	(10,998,850)
Personal				
Income	(76,119)	(6,238,846)	(7,450,992)	(13,765,958)
Motor Vehicle License	(8,730)	(715,474)	(854,470)	(1,578,674)
Fishing and Hunting	(2,791)	(228,734)	(273,166)	(504,690)
Property	(2,595)	(212,667)	(253,993)	(469,255)
Fees and Fines (non tax)	(16,030)	(1,313,887)	(1,569,168)	(2,899,085)
Social Security Insurance Contribution				
Employee	(6,628)	(491,637)	(560,036)	(1,058,301)
Employer	(18,014)	(1,336,245)	(1,522,150)	(2,876,410)
<b>Total</b>	<b>(1,391,859)</b>	<b>(83,704,147)</b>	<b>(97,574,036)</b>	<b>(182,670,041)</b>

Note: Other indirect business taxes include: motor vehicle license, other taxes, state & local (S/L) non taxes and severance tax.

Table 3 provides a summary of the projected impacts of hurricanes Katrina and Rita on Mississippi agribusiness in the short, intermediate, and long terms in percent reductions among key economic indicators. For example, the results show that agribusiness employment is projected to decline 1.35 percent during the next five to 15 years. Agribusiness and related industries' business revenues are projected to decline 1.33 percent in the long term, while business expenses are projected to decline almost 1 percent during this same period. Labor income is projected to decline 1.15 percent, value-added 1.32 percent, and other property income 1.72 percent in this industry. Statewide, employment is projected to decline 1.52 percent, business revenues 1.49 percent, business expenses 1.76 percent, labor income 1.34 percent, value-added 1.50 percent, and other property income 1.86 percent.



**Table 3. Percent Change in Agribusiness and Mississippi Economy Due To Hurricanes Katrina and Rita**

<b>Scenario</b>	<b>Employment</b>	<b>Business Revenues</b>	<b>Business Expenses</b>	<b>Labor Income</b>	<b>Other Property Income</b>	<b>Total Value Added</b>
<b>BASE MODEL</b>						
Agribusiness Industry Mississippi	0.253	0.233	0.172	0.166	0.159	0.166
<b>SHORT RUN</b>						
Agribusiness Industry Mississippi	(0.000147)	(0.000289)	(0.000073)	(0.000083)	(0.000513)	(0.000196)
Mississippi	(0.00020)	(0.00035)	(0.00013)	(0.00014)	(0.00061)	(0.00027)
<b>INTERMEDIATE RUN</b>						
Agribusiness Industry Mississippi	(0.01844)	(0.01235)	(0.00635)	(0.00799)	(0.01952)	(0.01089)
Mississippi	(0.02149)	(0.01632)	(0.00974)	(0.00327)	(0.02597)	(0.01522)
<b>LONG RUN</b>						
Agribusiness Industry Mississippi	(0.01348)	(0.01334)	(0.00962)	(0.01153)	(0.01715)	(0.01322)
Mississippi	(0.01521)	(0.01491)	(0.00176)	(0.01340)	(0.01861)	(0.01501)

Source: Derived from results in Table 2.

## CONCLUSION

Despite the events of the last 18 months, agribusiness continues to be a stable industry in the Mississippi economy. Agribusiness contributes a tremendous amount to the economy through value-added and related industries and plays a vital role in encouraging community and economic development in rural areas.

However, the study projects some rough economic times may lie ahead for the agribusiness industry in the coming years. According to Table 1, which is based on the 2003 IMPLAN data, agribusiness and related industries accounted for about 23.33 percent of the state's total revenues. Over the next several years, this figure is projected to decline by 1.35 percent to 21.98 percent of the state's total revenues. In fact, the authors project economic downturns in all the key indicators in the study. Although the state ended fiscal year 2006 with a \$70 million surplus, Mississippi's governor admitted that no one knows how much of this surplus resulted from the significant federal subsidies poured into the state in 2005 and 2006.

However, if the state can quickly complete the clean-up and reconstruction phases, it may hasten the day of its recovery and limit the long-term economic impact of hurricanes Katrina and Rita. Only time will tell if the authors' projections are correct.

## REFERENCES

- Anderson, John, D., C.W. Herdon, Gregg Ibendahl, Keith Coble. "Impact of Hurricane Katrina on Mississippi Agriculture." *Agricultural Economic And Policy Perspectives*, Vol. 4, Issue 9. September 2005. Agricultural Economics Department. Mississippi State University.
- Agro-Food Systems, Agribusiness, and Agricultural markets (AFS). Website:  
<http://www.worldbank.org/afr/aftsd/agribus.htm>. Accessed December 22, 2006.
- Bureau of Economic Analysis. Website:  
<http://www.bea.gov/katrina/disasteradjustmentsSPI.pdf>. Accessed January 3, 2007.
- Corporate Agribusiness: Monopolizing Sustenance. Website:  
<http://www.pcdf.org/1993/63krebs.htm>. Accessed December 22, 2006.
- Data and software*: Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 [www.implan.com](http://www.implan.com).
- Hamed, Mubarak. 1995. "*The Role of Agriculture and Agricultural Processing in Saline County, Missouri*." Community Policy Analysis Center, University of Missouri.
- Lindall, Scott and Doug Olson. 1993. *Micro IMPLAN Software Program. 2002 Database*, Minnesota IMPLAN group.
- Mississippi Department of Agriculture and Commerce, "Preliminary Assessment of Damages to Mississippi Agriculture and Forestry from hurricanes Katrina and Rita." September 2005.
- Popp, Jennie, Gina Vickery, H.L. Goodwin, Jr., and Wayne Miller. "Impact of the Agricultural Sector of on the Arkansas Economy in 2001." Website:  
<http://www.uark.edu/depts/agripub/Publications/bulletins/975.pdf>. Accessed December 30, 2006.
- The Facts On U.S. Farm Policy. Website:  
[http://www.cotton.org/issues/2002/upload/The\\_Facts-on-U.S-Farm-Policy.pdf](http://www.cotton.org/issues/2002/upload/The_Facts-on-U.S-Farm-Policy.pdf). Accessed December 31, 2006.

## **Appendix A**

**Table 1. Aggregation Scheme for an IMPLAN Input-Output Analysis of Hurricanes Katrina and Rita Impact on the Agribusiness Industry in Mississippi, 2005**

<b>AGGREGATION SCHEME</b>	<b>SECTOR DESCRIPTION</b>
AGRICULTURAL/FORESTRY SERVICES	Agriculture and forestry support activities
FARM INPUTS AND MACHINERY	Other nonmetallic mineral mining; new farm housing units and additions and alterations; plastics material and resin manufacturing; nitrogenous fertilizer manufacturing; fertilizer mixing only manufacturing; pesticide and other agricultural chemical manufacturing; other miscellaneous chemical product manufacturing; sawmill and woodworking machinery; food product machinery manufacturing
POULTRY AND EGGS	Poultry and egg production
CATTLE	Cattle ranching and farming
OTHER LIVESTOCK	Animal production, except cattle and poultry
COTTON (Crop)	Cotton farming
FOOD GRAINS (Crop)	Grain farming
FRUIT	Fruit farming
VEGETABLES AND MELONS (Crop)	Vegetable and melon farming
TREE NUTS (Crop)	Tree nut farming
OTHER CROPS	Tobacco farming; sugarcane and sugar beet farming; all other crop farming
OIL BEARING CROPS	Oilseed farming
GREENHOUSE AND NURSERY (Crop)	Greenhouse and nursery production
FOREST PRODUCTS (Forestry)	Logging; forest nurseries; forest products and timber
PROCESSED MEAT/EGGS	Dog and cat food manufacturing; other animal food manufacturing; animal, except poultry, slaughtering; meat processed from carcasses; rendering and meat byproduct processing; poultry processing; seafood product preparation and packaging
DAIRY PROCESSING (Livestock)	Fluid milk manufacturing; creamery butter manufacturing; cheese manufacturing; dry condensed, and evaporated dairy products, ice cream and frozen dessert manufacturing

MISCELLANEOUS FOOD PROCESSING	Sugar manufacturing; confectionery manufacturing from coco beans; confectionery manufacturing from purchased chocolate; non chocolate confectionery manufacturing; frozen food manufacturing; fruit and vegetable canning and drying; frozen cakes and other pastries manufacturing; bread and bakery product, except frozen manufacturing; cookie and cracker manufacturing; mixes and dough made from purchased flour; dry pasta manufacturing; tortilla manufacturing; roasted nuts and peanut butter manufacturing; other snack food manufacturing; coffee and tea manufacturing; mayonnaise, dressing, and sauce manufacturing; spice and extract manufacturing; all other food manufacturing; tobacco stemming and redrying, cigarette manufacturing; other tobacco product manufacturing
GRAIN/FLOUR MILLING (Crop)	Flour milling; rice milling; wet corn milling; breakfast cereal manufacturing
FATS AND OILS PROCESSING	Soybean processing; other oilseed processing; fats and oils refining and blending
SOFT DRINKS AND LIQUOR	Malt manufacturing; flavoring syrup and concentrate manufacturing; soft drink and ice manufacturing; breweries, wineries, distilleries
FABRIC MILLS	Fiber, yarn, and thread mills; broadwoven fabric mills; narrow fabric mills; knit fabric mills; textile and fabric finishing mills; fabric coating mills; carpet and rug mills; sheer hosiery mills; other apparel knitting mills
WOOD PROCESSING (Forestry)	Sawmills; wood preservation; reconstituted wood product manufacturing; veneer and plywood manufacturing; engineered wood member and truss manufacturing; wood windows and door manufacturing; cut stock, resawing lumber, and planing; other millwork, including flooring, wood container and pallet manufacturing; prefabricated wood building manufacturing; miscellaneous wood product manufacturing; custom architectural woodwork and millwork
PAPER PROCESSING (Forestry)	Pulp mills; paperboard container manufacturing; surface-coated paperboard manufacturing; coated and laminated paper and packaging mate; coated and uncoated paper bag manufacturing; die-cut paper office supplies manufacturing; sanitary paper product manufacturing; all other converted paper product manufacturing

FURNITURE (Forestry)	Wood kitchen cabinet and countertop manufacturing; upholstered household furniture manufacturing; nonuphostered wood household furniture manufacturing; institutional furniture manufacturing; wood office furniture manufacturing; showcases, partitions, shelving, and lockers, blind and shade manufacturing
LEATHER	Leather and hide tanning and finishing; other leather product manufacturing
FISHING AND HUNTING	Fishing; hunting and trapping
MAINTENANCE AND REPAIR OF FARM AND NONFARM RESIDENTS	Maintenance and repair of farm and nonfarm repair
MANUFACTURED RUBBER, INK, AND SOAP PRODUCTS	Synthetic rubber manufacturing; soap and other detergent manufacturing; printing ink manufacturing
MANUFACTURED FLOORING AND KITCHEN UTENSILS AND PANS	Resilient floor covering manufacturing; cutlery and flatware, except precious manufacturing; kitchen utensil, pot and pan manufacturing
HOUSEHOLD EQUIPMENT AND APPLIANCES	Household cooking appliance manufacturing; household refrigerator and home freezer manufacturing; household laundry equipment manufacturing; other major household appliance manufacturing
BUILDING MATERIAL, LAWN AND GARDEN	Lawn and garden equipment manufacturing; building material and garden supply stores
TEXTILE MACHINERY, EQUIPMENT, APPAREL MANUFACTURING, AND OTHER PRODUCTS	Curtain and linen mills; textile bag and canvas mills; tire cord and tire fabric mills; other miscellaneous textile product mills; other hosiery and sock mills; cut and sew apparel manufacturing; accessories and other apparel manufacturing; textile machinery manufacturing; mattress manufacturing
FURNITURE AND HOME FURNISHINGS	Furniture and home furnishing stores
CLOTHING AND CLOTHING ACCESSORIES	Clothing and clothing accessory stores
VETERINARY SERVICES	Veterinary services
HEALTH AND BEAUTY AID	Health and personal care stores; personal care services
FOOD AND BEVERAGES	Food and beverage stores; food services and drinking places
MISCELLANEOUS SERVICES	General merchandise stores; waste management and remediation services; household goods repair and maintenance; dry cleaning and laundry services

## **Appendix B**



**Table 1. Base Model of Agribusiness and Mississippi Economy**

Mississippi Agribusiness Industry	Output (\$)	Employment	Employee Compensation (\$)	Proprietor Income (\$)	Other Property Income (\$)	Indirect	Total Valued (\$)
						Business Taxes (\$)	
AGRICULTURAL/FORESTRY SERVICES	284	10,574	194	52	-54	3	195
FARM INPUTS AND MACHINERY	893	2,474	135	4	76	6	220
POULTRY AND EGGS	1,387	5,733	92	26	384	7	509
CATTLE (Livestock)	255	4,178	13	(1)	6	8	25
OTHER LIVESTOCK	404	18,282	44	(1)	14	9	67
COTTON (Crop)	377	4,285	41	5	122	5	174
FOOD GRAINS (Crop)	278	9,440	7	14	89	8	117
FRUITS (Crop)	16	348	3	0	6	1	10
VEGETABLES AND MELONS (Crop)	45	550	5	2	24	1	31
TREE NUTS (Crop)	3	41	0	0	1	0	2
OTHER CROPS (Crop)	75	855	6	2	31	2	41
OIL BEARING CROPS	260	5,831	2	18	87	9	116
GREENHOUSE AND NURSERY (Crop)	50	925	14	2	26	1	43
FOREST PRODUCTS (Forestry)	1,539	7,198	133	145	258	23	559
PROCESSED MEAT/EGGS	4,938	26,669	661	4	34	34	733
DAIRY PROCESSING (Livestock)	186	447	16	0	14	1	32
MISCELLANEOUS FOOD PROCESSING	381	1,912	60	0	64	3	128
GRAIN/FLOUR MILLING (Crop)	137	326	18	0	11	1	31
FATS AND OILS PROCESSING	224	344	13	0	2	2	16
SOFT DRINKS AND LIQUOR	263	901	33	13	34	2	82
FABRIC MILLS	404	2,079	85	2	28	4	119
WOOD PROCESSING (Forestry)	2,516	14,542	504	15	268	14	801
PAPER PROCESSING (Forestry)	1,149	4,520	241	19	54	13	327
FURNITURE (Forestry)	3,005	26,913	879	10	47	9	946
LEATHER	22	150	3	0	2	0	6
FISHING AND HUNTING	35	1,481	3	17	1	0	22
MAINTENANCE AND REPAIR OF FARM AND NONFARM RESIDENTS	200	1,507	35	10	11	1	56
MANUFACTURED RUBBER, INK, & SOAP PRODUCTS	165	395	22	1	25	1	48
MANUFACTURED FLOORING AND KITCHENS UTENSILS AND PANS	42	264	13	0	14	1	27
HOUSEHOLD EQUIPMENT AND APPLIANCES	275	1,252	46	1	41	2	90
BUILDING MATERIAL, LAWN AND GARDEN	948	12,454	306	19	154	108	587
TEXTILE MACHINERY, EQUIPMENT, APPAREL MANUFACTURING, AND OTHER PRODUCTS	1,032	9,251	243	2	145	5	395
FURNITURE AND HOME FURNISHINGS	277	4,934	104	14	45	41	203
CLOTHING AND CLOTHING ACCESSORIES	388	10,924	143	15	76	66	300
VETERINARY SERVICES	126	2,349	34	15	(3)	4	50
HEALTHY AND BEAUTY AID	638	13,005	242	43	80	64	428
FOOD AND BEVERAGES	3,945	107,875	1,313	124	214	212	1,862
MISCELLANEOUS SERVICES	2,204	49,600	900	44	335	226	1,506
<b>Agribusiness Industry</b>	<b>29,366</b>	<b>364,806</b>	<b>6,604</b>	<b>636</b>	<b>2,766</b>	<b>896</b>	<b>10,902</b>
<b>Rest of Mississippi</b>	<b>96,491</b>	<b>1,078,761</b>	<b>32,401</b>	<b>3,888</b>	<b>14,631</b>	<b>3,771</b>	<b>54,692</b>
<b>Total Mississippi</b>	<b>125,857</b>	<b>1,443,566</b>	<b>39,005</b>	<b>4,524</b>	<b>17,397</b>	<b>4,668</b>	<b>65,594</b>

Note: All figures are in millions, except employment is actual values.

**Table 2. Short Run Impacts of Hurricanes Katrina and Rita on Mississippi Agribusiness Industry**

<b>Mississippi Agribusiness Industry</b>	<b>Output (\$)</b>	<b>Employment</b>	<b>Employee Compensation (\$)</b>	<b>Proprietor Income (\$)</b>	<b>Other Property Income (\$)</b>	<b>Indirect Business Taxes (\$)</b>	<b>Total Valued (\$)</b>
AGRICULTURAL/FORESTRY SERVICES	(280,620)	(10)	(191,775)	(51,089)	53,494	(3,180)	(192,551)
FARM INPUTS AND MACHINERY	(148,096)	(1)	(23,518)	(484)	(25,492)	(982)	(50,476)
POULTRY AND EGGS	(31,174,688)	(129)	(2,068,212)	(585,403)	(8,639,665)	(159,073)	(11,452,354)
CATTLE (Livestock)	(2,145,356)	(35)	(105,743)	11,754	(46,915)	(67,825)	(208,729)
OTHER LIVESTOCK	(23,044)	(1)	(2,506)	36	(816)	(535)	(3,821)
COTTON (Crop)	(5,432)	(0)	(598)	(72)	(1,764)	(75)	(2,509)
FOOD GRAINS (Crop)	(170,651)	(6)	(4,112)	(8,351)	(54,782)	(4,624)	(71,869)
FRUITS (Crop)	(1,014)	(0)	(195)	(25)	(354)	(33)	(608)
VEGETABLES AND MELONS (Crop)	(2,911)	(0)	(340)	(114)	(1,538)	(41)	(2,033)
TREE NUTS (Crop)	(108)	(0)	(11)	(4)	(45)	(4)	(64)
OTHER CROPS (Crop)	(216,062)	(2)	(16,069)	(6,611)	(87,662)	(6,274)	(116,617)
OIL BEARING CROPS	(9,974)	(0)	(58)	(704)	(3,343)	(327)	(4,431)
GREENHOUSE AND NURSERY (Crop)	(13,783)	(0)	(3,866)	(648)	(7,067)	(209)	(11,790)
FOREST PRODUCTS (Forestry)	(7,558)	(0)	(675)	(724)	(1,180)	(82)	(2,661)
PROCESSED MEAT/EGGS	(898,551)	(3)	(91,269)	(460)	(44,604)	(6,463)	(142,795)
DAIRY PROCESSING (Livestock)	(19,011)	(0)	(1,625)	(9)	(2,372)	(130)	(4,136)
MISCELLANEOUS FOOD PROCESSING	(16,137)	(0)	(3,144)	(16)	(3,311)	(128)	(6,599)
GRAIN/FLOUR MILLING (Crop)	(2,735)	(0)	(356)	(2)	(223)	(30)	(610)
FATS AND OILS PROCESSING	(46,090)	(0)	(1,856)	(13)	(356)	(318)	(2,543)
SOFT DRINKS AND LIQUOR	(2,452)	(0)	(320)	(96)	(512)	(21)	(948)
FABRIC MILLS	(5,499)	(0)	(1,281)	(25)	(391)	(49)	(1,746)
WOOD PROCESSING (Forestry)	(33,793)	(0)	(7,502)	(192)	(3,011)	(184)	(10,889)
PAPER PROCESSING (Forestry)	(1,961)	(0)	(427)	(33)	(179)	(21)	(660)
FURNITURE (Forestry)	(16,080)	(0)	(4,458)	(51)	(692)	(57)	(5,258)
LEATHER	(346)	(0)	(84)	(5)	(73)	(2)	(164)
FISHING AND HUNTING	-	-	-	-	-	-	-
MAINTENANCE AND REPAIR OF FARM AND NONFARM RESIDENTS	(6,479)	(0)	(1,118)	(308)	(343)	(32)	(1,801)
MANUFACTURED RUBBER, INK, & SOAP PRODUCTS	(9,663)	(0)	(994)	(24)	(1,593)	(73)	(2,684)
MANUFACTURED FLOORING AND KITCHENS UTENSILS AND PANS	(457)	(0)	(141)	(1)	(144)	(6)	(292)
HOUSEHOLD EQUIPMENT AND APPLIANCES	(589)	(0)	(98)	(2)	(88)	(5)	(193)
BUILDING MATERIAL, LAWN AND GARDEN	(52,693)	(1)	(19,640)	(1,289)	(9,481)	(7,350)	(37,759)
TEXTILE MACHINERY, EQUIPMENT, APPAREL MANUFACTURING, AND OTHER PRODUCTS	(18,070)	(0)	(4,352)	(31)	(2,788)	(81)	(7,253)
FURNITURE AND HOME FURNISHINGS	(20,857)	(0)	(7,817)	(1,018)	(3,390)	(3,094)	(15,319)
CLOTHING AND CLOTHING ACCESSORIES	(29,291)	(1)	(10,783)	(1,130)	(5,730)	(4,944)	(22,588)
VETERINARY SERVICES	(548,343)	(10)	(147,406)	(63,677)	11,618	(16,012)	(215,477)
HEALTHY AND BEAUTY AID	(46,112)	(1)	(17,445)	(3,127)	(5,715)	(4,602)	(30,888)
FOOD AND BEVERAGES	(286,493)	(8)	(95,492)	(9,205)	(15,839)	(15,690)	(136,226)
MISCELLANEOUS SERVICES	(134,369)	(3)	(50,390)	(3,082)	(20,076)	(11,667)	(85,215)
<b>Agribusiness Industry</b>	<b>(36,395,369)</b>	<b>(212)</b>	<b>(2,885,678)</b>	<b>(726,233)</b>	<b>(8,926,420)</b>	<b>(314,223)</b>	<b>(12,852,555)</b>
<b>Rest of Mississippi</b>	<b>(7,896,851)</b>	<b>(69)</b>	<b>(2,081,944)</b>	<b>(321,634)</b>	<b>(1,716,468)</b>	<b>(506,973)</b>	<b>(4,627,020)</b>
<b>Total Mississippi</b>	<b>(44,292,219)</b>	<b>(282)</b>	<b>(4,967,622)</b>	<b>(1,047,867)</b>	<b>(10,642,888)</b>	<b>(821,196)</b>	<b>(17,479,574)</b>

**Table 3. Intermediate Term Impacts of Hurricanes Katrina and Rita on Mississippi Agribusiness Industry**

<b>Mississippi Agribusiness Industry</b>	<b>Output (\$)</b>	<b>Employment</b>	<b>Employee Compensation (\$)</b>	<b>Proprietor Income (\$)</b>	<b>Other Property Income (\$)</b>	<b>Indirect Business Taxes (\$)</b>	<b>Total Valued (\$)</b>
AGRICULTURAL/FORESTRY SERVICES	(145,468,576)	(5,422)	(99,412,664)	(26,483,848)	27,730,384	(1,648,699)	(99,814,824)
FARM INPUTS AND MACHINERY	(25,389,131)	(113)	(4,104,145)	(79,961)	(4,529,380)	(164,478)	(8,877,964)
POULTRY AND EGGS	(97,069,496)	(401)	(6,439,850)	(1,822,785)	(26,901,568)	(495,311)	(35,659,516)
CATTLE (Livestock)	(117,805,952)	(1,928)	(5,806,566)	645,427	(2,576,186)	(3,724,396)	(11,461,721)
OTHER LIVESTOCK	(5,459,498)	(247)	(593,795)	8,585	(193,224)	(126,866)	(905,300)
COTTON (Crop)	(896,370,752)	(10,190)	(98,645,672)	(11,889,784)	(291,048,096)	(12,453,398)	(414,036,960)
FOOD GRAINS (Crop)	(59,286,944)	(2,010)	(1,428,703)	(2,901,169)	(19,032,202)	(1,606,418)	(24,968,492)
FRUITS (Crop)	(22,487,326)	(482)	(4,324,073)	(554,689)	(7,855,505)	(739,383)	(13,473,651)
VEGETABLES AND MELONS (Crop)	(347,490)	(4)	(40,606)	(13,555)	(183,618)	(4,913)	(242,691)
TREE NUTS (Crop)	(25,345)	(0)	(2,622)	(881)	(10,471)	(932)	(14,906)
OTHER CROPS (Crop)	(12,269,830)	(137)	(912,469)	(375,520)	(4,978,221)	(356,292)	(6,622,501)
OIL BEARING CROPS	(2,376,177)	(53)	(13,835)	(167,707)	(796,323)	(77,853)	(1,055,718)
GREENHOUSE AND NURSERY (Crop)	(2,292,676)	(42)	(643,013)	(107,830)	(1,175,554)	(34,707)	(1,961,103)
FOREST PRODUCTS (Forestry)	(907,893)	(5)	(80,842)	(86,841)	(142,760)	(10,249)	(320,692)
PROCESSED MEAT/EGGS	(8,743,485)	(34)	(1,029,437)	(5,522)	(209,333)	(65,855)	(1,310,147)
DAIRY PROCESSING (Livestock)	(869,349)	(2)	(75,492)	(387)	(71,972)	(5,869)	(153,719)
MISCELLANEOUS FOOD PROCESSING	(1,224,536)	(7)	(241,008)	(1,197)	(246,340)	(9,687)	(498,231)
GRAIN/FLOUR MILLING (Crop)	(63,555)	(0)	(8,272)	(36)	(5,171)	(695)	(14,174)
FATS AND OILS PROCESSING	(195,727)	(0)	(7,987)	(53)	(1,522)	(1,350)	(10,912)
SOFT DRINKS AND LIQUOR	(288,743)	(1)	(37,044)	(12,363)	(50,399)	(2,428)	(102,233)
FABRIC MILLS	(266,066)	(2)	(73,236)	(1,281)	(16,298)	(2,340)	(93,155)
WOOD PROCESSING (Forestry)	(2,028,431)	(16)	(468,780)	(12,288)	(182,594)	(11,060)	(674,722)
PAPER PROCESSING (Forestry)	(127,745)	(1)	(27,419)	(2,137)	(11,037)	(1,385)	(41,978)
FURNITURE (Forestry)	(1,330,365)	(13)	(370,907)	(4,264)	(57,066)	(4,786)	(437,022)
LEATHER	(22,962)	(0)	(5,740)	(336)	(5,018)	(151)	(11,246)
FISHING AND HUNTING	(102,000,000)	(4,373)	(8,528,236)	(51,447,532)	(2,271,434)	(1,446,172)	(63,693,372)
MAINTENANCE AND REPAIR OF FARM AND NONFARM RESIDENTS	(573,768)	(4)	(98,977)	(27,295)	(30,404)	(2,814)	(159,490)
MANUFACTURED RUBBER, INK, & SOAP PRODUCTS	(765,267)	(2)	(80,166)	(1,929)	(125,486)	(5,799)	(213,380)
MANUFACTURED FLOORING AND KITCHENS UTENSILS AND PANS	(49,673)	(0)	(15,379)	(114)	(15,805)	(619)	(31,918)
HOUSEHOLD EQUIPMENT AND APPLIANCES	(46,777)	(0)	(7,814)	(138)	(6,988)	(401)	(15,341)
BUILDING MATERIAL, LAWN AND GARDEN	(3,969,924)	(64)	(1,534,032)	(101,828)	(733,095)	(581,631)	(2,950,586)
TEXTILE MACHINERY, EQUIPMENT, APPAREL MANUFACTURING, AND OTHER PRODUCTS	(1,453,382)	(13)	(350,867)	(2,479)	(226,534)	(6,546)	(586,426)
FURNITURE AND HOME FURNISHINGS	(1,651,751)	(29)	(619,091)	(80,617)	(268,444)	(245,013)	(1,213,165)
CLOTHING AND CLOTHING ACCESSORIES	(2,331,474)	(66)	(858,310)	(89,967)	(456,109)	(393,537)	(1,797,923)
VETERINARY SERVICES	(4,088,912)	(76)	(1,099,181)	(474,829)	86,637	(119,402)	(1,606,776)
HEALTHY AND BEAUTY AID	(3,658,387)	(75)	(1,382,097)	(248,854)	(450,438)	(361,856)	(2,443,245)
FOOD AND BEVERAGES	(22,137,244)	(604)	(7,388,447)	(722,636)	(1,243,404)	(1,230,891)	(10,585,379)
MISCELLANEOUS SERVICES	(9,075,061)	(193)	(3,573,877)	(191,114)	(1,373,170)	(871,585)	(6,009,746)
<b>Agribusiness Industry</b>	<b>(1,554,519,667)</b>	<b>(26,612)</b>	<b>(250,330,649)</b>	<b>(97,259,751)</b>	<b>(339,664,149)</b>	<b>(26,815,767)</b>	<b>(714,070,326)</b>
<b>Rest of Mississippi</b>	<b>(499,785,822)</b>	<b>(4,408)</b>	<b>(118,155,224)</b>	<b>(24,109,921)</b>	<b>(112,210,928)</b>	<b>(29,980,839)</b>	<b>(284,456,911)</b>
<b>Total Mississippi</b>	<b>(2,054,305,489)</b>	<b>(31,021)</b>	<b>(368,485,873)</b>	<b>(121,369,672)</b>	<b>(451,875,077)</b>	<b>(56,796,606)</b>	<b>(998,527,237)</b>

**Table 4. Long Run Impacts of Hurricanes Katrina and Rita on Mississippi Agribusiness Industry**

<b>Mississippi Agribusiness Industry</b>	<b>Output (\$)</b>	<b>Employment (\$)</b>	<b>Employee Compensation (\$)</b>	<b>Proprietor Income (\$)</b>	<b>Other Property Income (\$)</b>	<b>Indirect Business Taxes (\$)</b>	<b>Total Valued (\$)</b>
AGRICULTURAL/FORESTRY SERVICES	(315,516,672)	(11,761)	(215,622,864)	(57,442,612)	60,146,308	(3,575,976)	(216,495,152)
FARM INPUTS AND MACHINERY	(8,427,866)	(35)	(1,443,234)	(24,439)	(1,382,542)	(55,669)	(2,905,884)
POULTRY AND EGGS	(7,718,508)	(32)	(512,066)	(144,939)	(2,139,086)	(39,385)	(2,835,476)
CATTLE (Livestock)	(5,435,602)	(89)	(267,917)	29,780	(118,866)	(171,845)	(528,847)
OTHER LIVESTOCK	(13,322,716)	(603)	(1,449,028)	20,951	(471,522)	(309,588)	(2,209,188)
COTTON (Crop)	(5,642,689)	(64)	(620,978)	(74,847)	(1,832,159)	(78,395)	(2,606,379)
FOOD GRAINS (Crop)	(5,944,636)	(202)	(143,254)	(290,897)	(1,908,338)	(161,074)	(2,503,563)
FRUITS (Crop)	(100,388,536)	(2,152)	(64,089)	(2,476,259)	(35,068,760)	(3,300,774)	(60,149,436)
VEGETABLES AND MELONS (Crop)	(548,455)	(7)	(4,108)	(21,394)	(289,809)	(7,755)	(383,047)
TREE NUTS (Crop)	(49,324)	(1)	(5,102)	(1,714)	(20,377)	(1,814)	(29,008)
OTHER CROPS (Crop)	(1,764,976)	(20)	(19,434,696)	(54,229)	(716,135)	(51,242)	(952,659)
OIL BEARING CROPS	(5,093,002)	(114)	-	(359,457)	(1,706,807)	(166,866)	(2,262,784)
GREENHOUSE AND NURSERY (Crop)	(4,194,916)	(78)	(1,176,522)	(197,296)	(2,150,914)	(63,503)	(3,588,235)
FOREST PRODUCTS (Forestry)	(976,434,002)	(1,899)	(125,226)	(81,550,863)	(248,712,080)	(42,826,701)	(437,049,663)
PROCESSED MEAT/EGGS	(9,840,023)	(49)	(1,168,401)	(7,416)	(97,733)	(74,258)	(1,465,986)
DAIRY PROCESSING (Livestock)	(999,796)	(2)	(135,430)	(442)	(79,731)	(6,742)	(173,835)
MISCELLANEOUS FOOD PROCESSING	(1,445,863)	(8)	(273,343)	(1,412)	(290,642)	(11,436)	(587,788)
GRAIN/FLOUR MILLING (Crop)	(66,559)	(0)	(93,380)	(38)	(5,415)	(728)	(14,843)
FATS AND OILS PROCESSING	(37,875)	(0)	(31,328)	(10)	(305)	(261)	(2,251)
SOFT DRINKS AND LIQUOR	(230,332)	(1)	(21,729)	(9,208)	(46,168)	(1,947)	(87,254)
FABRIC MILLS	(368,948)	(3)	(250,651)	(1,730)	(24,069)	(3,260)	(125,020)
WOOD PROCESSING (Forestry)	(2,137,220)	(22)	(64,044,727)	(13,783)	(197,998)	(11,527)	(811,009)
PAPER PROCESSING (Forestry)	(129,852)	(1)	(414,510)	(2,233)	(11,433)	(1,368)	(43,571)
FURNITURE (Forestry)	(1,452,902)	(14)	(417,348)	(4,577)	(57,318)	(4,784)	(462,836)
LEATHER	(26,801)	(0)	(3,254)	(386)	(5,711)	(175)	(12,840)
FISHING AND HUNTING	-	-	-	-	-	-	-
MINING	(3,084,836)	(12)	(267,882)	(513,005)	(760,912)	(242,091)	(1,783,890)
CONSTRUCTION	(4,708,622)	(64)	(6,696,453)	(416,095)	(89,464)	(23,647)	(2,039,052)
PETROLEUM AND CHEMICALS	(13,720,100)	(11)	(779,777)	(65,141)	(595,527)	(76,053)	(1,488,939)
METAL INDUSTRIES	(1,426)	(0)	(143)	(5)	(80)	(5)	(232)
MACHINERY AND EQUIPMENT	(294,551)	(1)	(37,307)	(636)	(29,406)	(1,905)	(71,260)
TRANSPORTATION AND COMMUNICATION SERVICES	(14,198,243)	(136)	(6,337,124)	(382,740)	(1,446,951)	(170,352)	(6,313,888)
TRANSPORTATION EQUIPMENT	(9,210)	(0)	(5,426)	(6)	(52)	(6)	(496)
MISCELLANEOUS MANUFACTURING	(2,673,278)	(23)	(493,724)	(16,288)	(348,647)	(13,058)	(1,043,120)
UTILITY SERVICES	(12,514,224)	(33)	(2,357,329)	(89,836)	(4,273,978)	(1,363,226)	(8,084,369)
WHOLESALE AND RETAIL TRADE	(40,140,331)	(950)	(12,529,807)	(2,472,171)	(6,207,579)	(5,892,724)	(30,186,753)
FINANCIAL/REAL ESTATE	(93,876,069)	(391)	(9,079,343)	(2,168,611)	(46,354,565)	(8,763,594)	(66,366,113)
MISCELLANEOUS SERVICES	(27,064,562)	(688)	(5,574,516)	(1,235,386)	(998,859)	(593,443)	(11,531,403)
<b>Agribusiness Industry</b>	<b>(1,679,503,519)</b>	<b>(19,465)</b>	<b>(351,882,015)</b>	<b>(149,989,370)</b>	<b>(298,293,630)</b>	<b>(68,067,176)</b>	<b>(867,196,068)</b>
<b>Rest of Mississippi</b>	<b>(197,566,865)</b>	<b>(2,492)</b>	<b>(67,869,405)</b>	<b>(13,615,933)</b>	<b>(25,394,002)</b>	<b>(9,127,523)</b>	<b>(117,043,006)</b>
<b>Total Mississippi</b>	<b>(1,877,070,384)</b>	<b>(21,957)</b>	<b>(419,751,420)</b>	<b>(163,605,302)</b>	<b>(323,687,632)</b>	<b>(77,194,699)</b>	<b>(984,239,074)</b>