

# **The Economic Impact of Manufacturing in the Savannah Area, 2005**

## **Sponsors:**

**Georgia Power and Savannah Electric  
The Savannah Area Chamber of Commerce Manufacturers Council**

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## Foreword

This study was produced by Michael Toma and Jeri Bice of Armstrong Atlantic State University. The report was produced on behalf of the Savannah Area Chamber of Commerce Manufacturers Council is intended for its use. The report could not have been completed without the generous financial support provided by Georgia Power and Savannah Electric, along with that from the Savannah Area Chamber of Commerce Manufacturers Council.

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## EXECUTIVE SUMMARY

The manufacturing sector has long been a key foundation underpinning the Savannah area economy. However, in recent years the regional manufacturing industry has declined while non-manufacturing industries have experienced solid growth. Yet, despite its decline in recent years, manufacturing has become more closely integrated with the region's non-manufacturing sectors since 2001. In some respects, manufacturing's overall role in the economy has increased despite its recent loss of jobs.

This apparently counterintuitive result occurs for three reasons. First, workers in manufacturing earn wages and salaries significantly higher than those in other economic sectors. Second, manufacturing has been purchasing more of its inputs from local suppliers. Third, the value-adding capacity of the manufacturing sector is unsurpassed by any other sector in the regional economy.

Thus, the benefits of maintaining a healthy manufacturing sector are substantial. Manufacturing's economic ripple effects spread through the entire regional economy creating opportunities in services, construction, distribution, retail, finance, insurance, real estate, and more. Manufacturing businesses also support state and municipal governments through their tax payments.

This study documents the economic and fiscal impact of manufacturing on the regional economy of Chatham, Effingham, Bryan and Liberty counties in 2005. This information could help the community understand the need to maintain the current manufacturing base and emphasize the benefits of attracting new manufacturing businesses.

Key findings are reported below.

In 2005, the total economic impact on manufacturing and non-manufacturing sectors was:

- 35,193 jobs (17% of total regional employment).
- \$1.8 billion in labor income including benefits (22% of total regional labor income).
- \$8.2 billion in business revenue (36% of total regional business revenue).

In 2005, the manufacturing sector itself:

- employed 14,498 workers each earning approximately \$56,300 per year.
- paid \$1 billion in labor income including benefits to its employees.
- realized \$5.8 billion in business revenue.

The secondary (ripple) economic effect from manufacturing occurs as local firms supply the region's manufacturing industry (indirect impact) and as local firms benefit from the recycling of manufacturing-related payroll (induced impact).

Secondary Economic Impact:

- Employment: 21,352 jobs
- Labor Income: \$822 million
- Business Revenue: \$2.4 billion

Manufacturing-related economic activity generated over \$200 million in tax revenue for local and state governments, and nearly \$400 million for the federal government.

# The Economic Impact of Manufacturing in the Savannah Area, 2005

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## **1. Introduction**

This study documents the economic impact of the Savannah area manufacturing sector on the regional economy. For the purposes of this study the Savannah area is defined as the three-county Savannah metropolitan statistical area (MSA) and Liberty County, Georgia that is adjacent to the MSA. Some have observed that “the Savannah market” more recently includes adjacent counties given the increasing economic integration of the region. While Jasper and Beaufort counties in South Carolina have increasing ties to the Savannah MSA, particularly in tourism and health services, the economic integration of Savannah’s manufacturing sector with that of the bordering South Carolina counties is not sufficiently developed to merit the inclusion of the South Carolina counties in this study.

The economic and fiscal impact estimates are based on a comprehensive economic model of the regional economy secured from MIG, Incorporated. The vendor provided Implan software that estimates economic impacts based on the economic structure of the region. Implan is an input-output model that tracks the flow of expenditures and output through the economy and provides a ready way of assessing the economic effects of an event, business, or industry. The vendor’s baseline data in the model were augmented with data made available to Armstrong Atlantic State University from the Georgia Department of Labor by special arrangement. State and local government fiscal impact estimates were obtained from Implan as well.

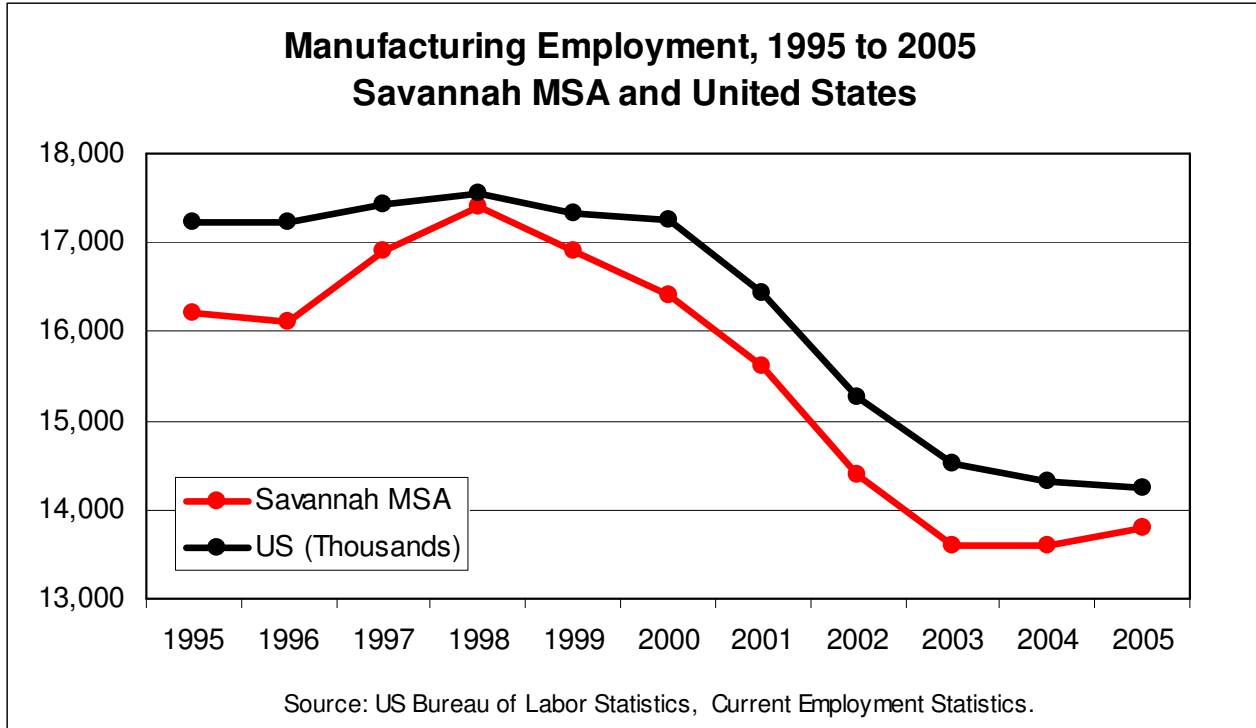
Beyond the scope of this study was a quantification of the impact associated with the role manufacturing plays in regional community affairs. The support of charitable causes, not only in direct financial aid, but also in in-kind donations is substantial. An additional intangible impact results from the donation of employee time to volunteer activities. In addition to volunteer activity that may take place during normal business hours, this also includes time donated by workers to volunteer organizations not necessarily associated with their employers, such as civic or religious organizations. These activities represent both real financial impacts and implicit time-value impacts and thus would supplement the overall economic impact reported in this document.

## **2. The Regional Manufacturing Sector**

Manufacturing employment in the region has experienced a substantial decline since peaking in 1998. Employment fell fairly steadily from the peak level of 17,500 workers in 1998, except for the recession of 2001 that briefly accelerated the losses into 2002. Before stabilizing again during the nation’s period of the “jobless recovery,” the sector shed 4,000 workers or nearly 25 percent of its total job base.

Since the low point recorded in 2003 at approximately 13,600 jobs, the sector has expanded at a very slow pace, adding only 200 jobs in two years. The tepid pace of manufacturing growth occurred during an otherwise very strong period of regional economic growth. Total employment in the Savannah MSA increased by 9.5 percent from 2003 to 2005 as compared to only 1.5 percent growth in manufacturing employment.

Manufacturing employment in the Savannah MSA and in the United States is charted in the figure below. Regional manufacturing employment is nearly in sync with national trends through 2003. In 2004 and 2005, however, the national manufacturing sector experienced a minor loss of employment while the reverse occurred in the Savannah MSA.

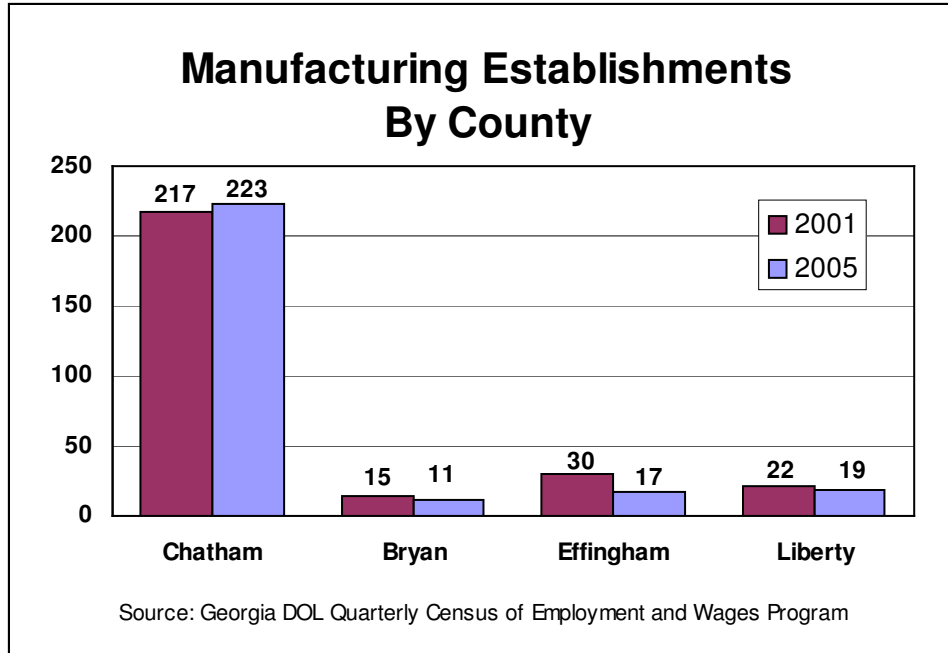


The manufacturing data charted above is from the U.S. Bureau of Labor Statistics monthly survey program known as Current Employment Statistics (CES). A sample of business establishments are surveyed to develop estimates of employment that are annually benchmarked against a comprehensive data collection effort known as the Quarterly Census of Employment and Wages (QCEW) administered by the Georgia Department of Labor under the guidelines established by the U.S. Department of Labor.

While the CES data is available only at the state and MSA level, the QCEW data is available at the county level. The QCEW data is considered next to ascertain the distribution of manufacturing establishments and their characteristics across the four county area of study in this document. Chatham County hosted, by far, the largest number of manufacturing establishments and jobs. Of the 270 manufacturing establishments in the region, 223 were located in Chatham County (see the figure on the following page). The remaining 47 firms were located in Effingham, Liberty, and Bryan counties.

In comparison to representative data from 2001, the number of manufacturing establishments increased only slightly in Chatham County, while the other three counties lost a combined total of 20 establishments. The effect was a consolidation of manufacturing activity in Chatham County which saw its share of manufacturing establishments rise from 71 percent to 83 percent

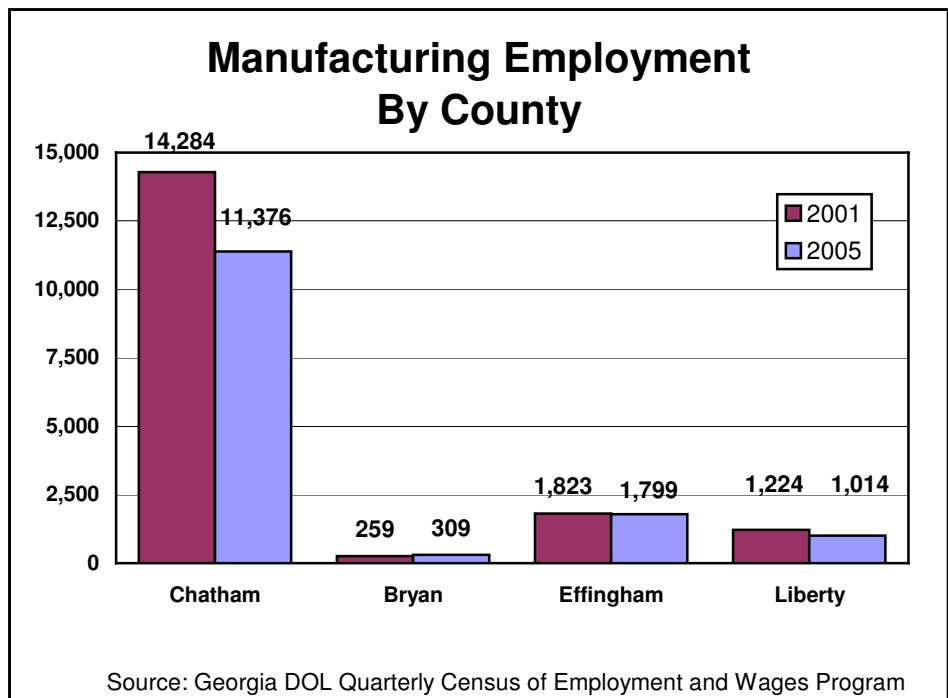
of total manufacturing firms. Effingham County suffered the most substantial loss in both absolute and relative terms, losing 13 firms or approximately 43% of its manufacturing firms. Bryan County and Liberty County both lost four or fewer plants each.



The chart at lower right provides information about the geographic

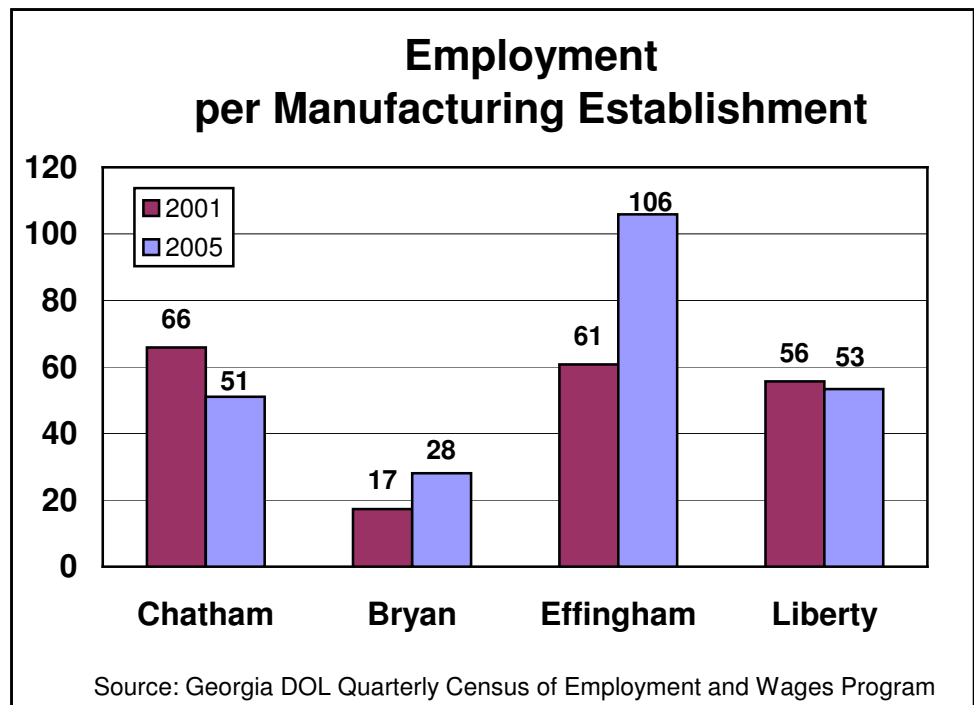
distribution of manufacturing employment in the Savannah area. Consistent with the growing concentration of plants in Chatham County, manufacturing employment in the county represented 78 percent of the regional total. Of the total 14,498 manufacturing jobs, nearly 11,400 were in Chatham County establishments. Manufacturing was more thinly distributed in Liberty County with 1,799 jobs and Effingham County with 1,014 jobs. Manufacturing's presence was smallest in Bryan County, which had the fewest number of establishments and workers (309).

In the four county region as a whole, representative data from 2001 compared to that of 2005 indicates that manufacturing employment decreased 18 percent from 17,590 to 14,498. Chatham and Liberty Counties experienced declines on par with that figure, losing 20 percent and 17 percent, respectively.



Effingham County experienced a minor decline of 24 workers or 1.3 percent, while Bryan County manufacturing employment increased by 50 workers or 19 percent.

The figure at right charts employment per manufacturing establishment across the four counties of the region. Of the 270 manufacturing establishments in the Savannah area, Effingham County had the largest number of employees per plant with an average of 106 employees per establishment compared to the



regional average of 54 employees per establishment. Chatham and Liberty county plants were very close to the regional average size, while those in Bryan County were significantly smaller with 28 employees per establishment. Bryan County plants, however, have increased in typical size from 17 workers per plant since 2001. The typical size of a plant in Effingham County was heavily influenced by the combined effect of a reduction in the number of plants in the county and increased employment at a larger establishment.

Table 1 presents a listing of the number of establishments, employment, and average annual pay per worker in manufacturing sectors in the four-county region as of the first quarter of 2005. Manufacturing employment is concentrated in the Transportation Equipment, Paper Manufacturing, and Chemical Manufacturing industries. Combined, these three industries account for two-thirds of all manufacturing employment in the region but only 19 percent of the region's manufacturing establishments. The concentration of employment in these three manufacturing sectors is little changed from 2001. Operations in these industries are significantly larger than in other manufacturing sectors in the region.

Average annual compensation per worker in the manufacturing sector was \$56,273 per worker. The Petroleum & Coal Products and Transportation Equipment industries paid the highest wages at \$68,934 and \$68,327, respectively. Paper Manufacturing (\$61,327) and Chemical Manufacturing (\$58,463) workers also earned above the manufacturing average.

Since 2001, annual compensation has increased by 20 percent from \$47,000 to \$56,273 per worker. This represents an average annual increase of 5 percent. Among the three largest

manufacturing sectors, average annual growth in compensation per worker was 11 percent in Petroleum & Coal Products, 6.8 percent in Transportation Equipment, and 1.8 percent in Paper Manufacturing.

**Table 1: Manufacturing Establishments, Employment, and Wages in the Savannah Area First Quarter, 2005**

NAICS	Manufacturing Sector	Establishments	Employment	Average Annual Pay Per Worker*
311	Food Manufacturing	17	882	\$36,867
312	Beverage and Tobacco Product Manufacturing	**	**	**
313	Textile Mills	**	**	**
314	Textile Product Mills	8	39	\$27,465
315	Apparel Manufacturing	3	7	\$9,394
316	Leather and Allied Product Manufacturing	**	**	**
321	Wood Product Manufacturing	21	659	\$34,777
322	Paper Manufacturing	9	2,990	\$61,327
323	Printing and Related Support Activities	30	283	\$29,934
324	Petroleum and Coal Products Manufacturing	4	302	\$68,934
325	Chemical Manufacturing	19	1,247	\$58,463
326	Plastics and Rubber Products Manufacturing	3	29	\$26,200
327	Nonmetallic Mineral Product Manufacturing	32	856	\$36,434
331	Primary Metal Manufacturing	**	**	**
332	Fabricated Metal Product Manufacturing	37	639	\$41,369
333	Machinery Manufacturing	11	533	\$37,847
334	Computer and Electronic Product Manufacturing	**	**	**
335	Electric Equip, Appliance, and Component Manufacturing	**	**	**
336	Transportation Equipment Manufacturing	22	5,577	\$68,327
337	Furniture and Related Product Manufacturing	16	187	\$28,924
339	Miscellaneous Manufacturing	26	117	\$33,697
31-33	Manufacturing	270	14,498	\$56,273

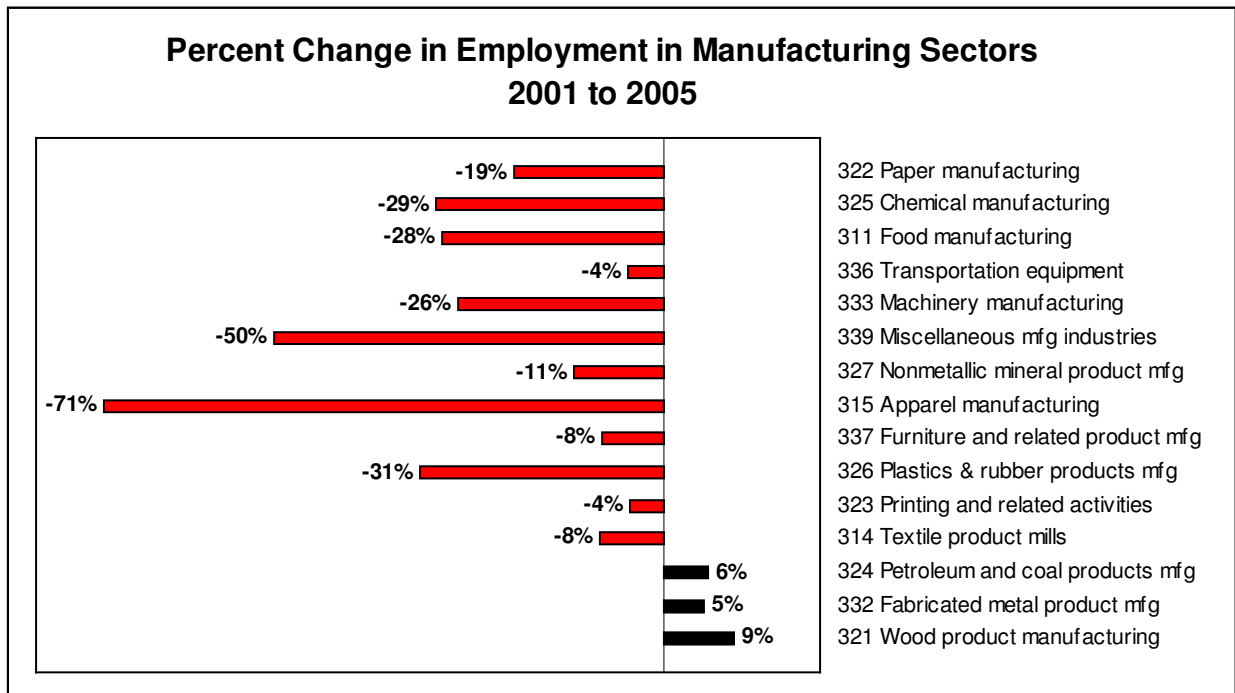
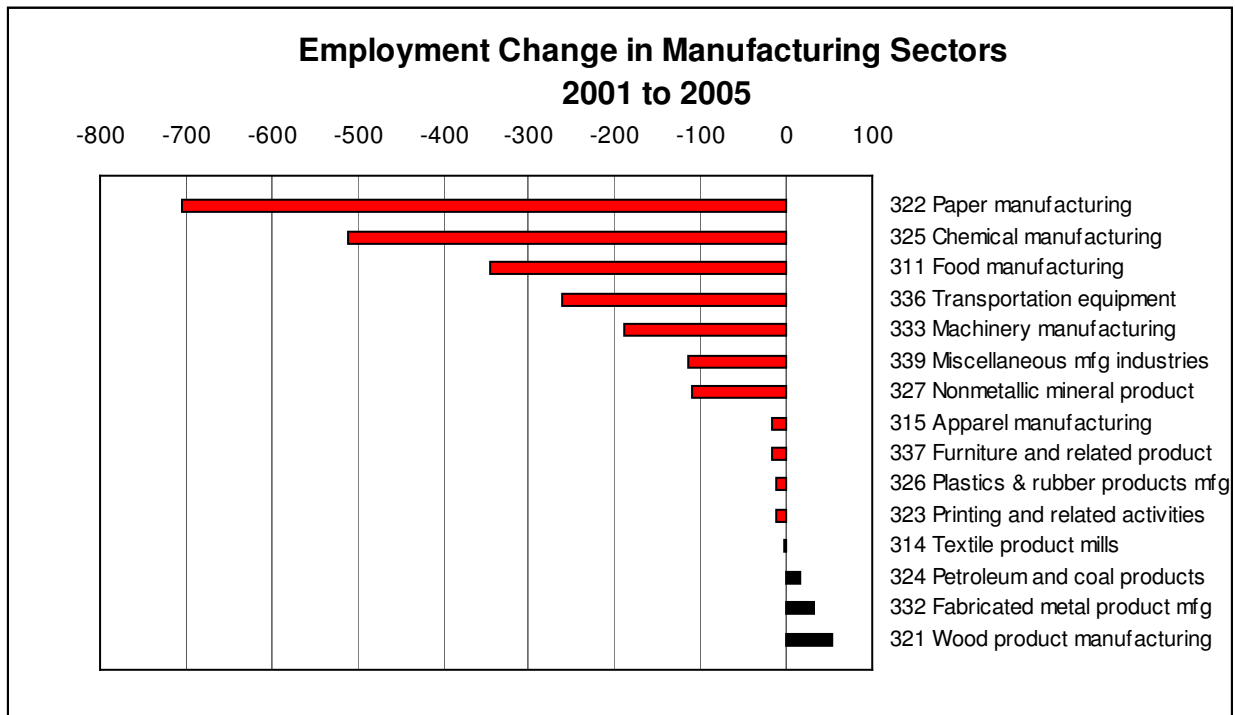
Source: Georgia Department of Labor Quarterly Census of Employment and Wages, first quarter of 2005.

Notes: \*Estimated from first quarter data.

\*\*Indicates that data is suppressed to preserve confidentiality of reporting units.

Since the last economic impact assessment of manufacturing was completed using data from 2001, manufacturing experienced a loss 2,317 jobs and 15 establishments. This represents an overall decline of 14 percent in manufacturing employment and a 5 percent decrease in manufacturing establishments. The two charts on the following page summarize the distribution of losses by manufacturing sector from 2001 through the first quarter of 2005. The upper chart details the employment losses across sectors, while the lower chart details the percentage loss of jobs from the base that existed in 2001. The information in both charts is presented in order of the industries that lost the greatest number of jobs.

Of the establishments for which the information could be disclosed, paper, chemical, and food manufacturing establishments experienced the largest employment losses. In percentage terms, the Apparel Manufacturing sector lost the largest percent of its employment base. Three sectors, however, bucked the overall downward trend. Employment in Wood Products Manufacturing, Fabricated Metal Products, and Petroleum & Coal Products increased between 2001 and 2005, no small feat in an unfavorable economic climate for manufacturing in the region and nation.



### **3. Measures of Economic Impact**

The economic impact of the manufacturing sector in the Savannah area was estimated using an input-output model that tracks the flow of dollars and economic activity in an area. Dollars are initially injected into an economy through an industry's purchases of inputs from local firms and households. These firms and households then spend a portion of their income purchasing goods and services from other local businesses, thus generating a second round of economic activity. Each subsequent round of spending results in a smaller impact as a portion of the spending leaks out of the local economy through the purchase of non-local goods and services. An input-output model tracks each of these waves of spending and yields an economic multiplier that can be applied to the initial dollar infusion to estimate the total impact of the economic activity.

Economic activity associated with the manufacturing sector produces both direct and secondary impacts in the Savannah area economy. Direct impacts are the results of activity within the manufacturing industry itself. Secondary impacts are commonly referred to as 'ripple' effects, and can be both indirect and induced. Indirect impacts arise from supply linkages in the regional economy. The indirect impact arises as local companies provide inputs to manufacturers and as these suppliers buy their own inputs from other local businesses.

Induced impacts result from local expenditures by individuals who are employed by regional manufacturers and their suppliers. These companies hire workers who spend their income at local businesses and thereby induce additional economic activity. This increased spending flows through the regional market, further stimulating economic activity and increasing employment, labor income and business revenue. The total economic impact of Savannah area manufacturers is the sum of its direct and secondary (indirect and induced) impacts on the local economy.

### **4. Overview of the Economic Impact**

This section provides an overview of the economic impact of manufacturing in the four-county area in 2005. The economic impacts are estimated for employment, business revenue and labor income. In the following sections, additional detail is provided about each of these three impacts and the nature of the impact itself (direct or secondary).

In Table 2, summary data regarding the overall economic impact of manufacturing are presented. Savannah area manufacturers employed 14,498 workers, approximately 637 of which were supported as a result of sales to other manufacturers in the region. The direct employment impact in manufacturing is 13,861 workers. The secondary employment impact, or the economic ripple emanating from manufacturing was 21,352 jobs. These arise from manufacturing's suppliers (indirect effects) and from the re-spending of manufacturing-related payroll through the regional economy. The total employment impact was 35,193 jobs, implying an employment multiplier of 2.5. The multiplier indicates that every ten jobs in manufacturing support fifteen other jobs in the region.

	Direct Impact	Secondary Impact (Indirect and Induced)	Total Impact	Multiplier
Employment	13,841	21,352	35,193	2.5
Business Revenue*	\$5,791	\$2,413	\$8,204	1.4
Labor Income*	\$1,014	\$822	\$1,836	1.8

Notes: \*Business Revenue and Labor Income are in millions of 2005 dollars.  
 Labor Income includes salaries, wages, benefits, and proprietor's income.  
 Secondary includes indirect and induced impacts.

Labor income, including benefits, earned by workers directly employed by manufacturers in the region was just over \$1 billion in 2005. An additional \$822 million was earned by other workers in non-manufacturing jobs as a result of manufacturing's presence in the region. In total, \$1.84 billion in labor income was directly or indirectly linked to manufacturing activity. This yields an estimated multiplier of 1.8 for labor income. This means that for every \$1 earned by workers in the manufacturing sector, an additional 80 cents was earned by other workers in the region.

Manufacturing establishments also serve as markets to other businesses located in the region. Area manufacturers themselves earned approximately \$5.8 billion in business revenue (sales). As a result of linkages to manufacturers and recycling manufacturing-related income, other businesses garnered \$2.4 billion in business revenue. The multiplier for business revenue is 1.4. This implies that for every \$1 in sales by a manufacturer, an additional 40 cents in revenue was generated for other businesses in the region.

The manufacturing sector's economic relationship with non-manufacturing sectors has grown closer since 2001 and this provides an explanation for several apparently counter-intuitive results in the 2005 impacts as compared to the 2001 impacts. For example, the total number of manufacturing positions declined by roughly 3,100, yet the number of non-manufacturing jobs supported by manufacturing activity remained relatively stable at roughly 21,000. This apparently counter-intuitive result occurs as a result of manufacturing's deeper integration with the other sectors of the regional economy.

Manufacturing supply chain linkages with other local businesses have grown tighter. This fact is further borne out by comparing 2001 and 2005 secondary labor income and business revenue impacts. While labor income in manufacturing increased marginally, secondary labor income increased by 28 percent since 2001. The effect is also apparent in a comparison of business revenue from 2001 to 2005. As compared to 2001, business revenue earned by manufacturers increased by 28 percent versus a 41 percent increase in the revenue streams of firms affected by manufacturing activity.

As a result of increasing linkages with the supplying firms in the region, manufacturing’s impact multipliers have increased since 2001. The employment multiplier increased to 2.5 from 2.3, while the labor income multiplier increased to 1.8 from 1.7 in 2001. The business revenue multiplier remained stable at 1.4.

## 5. Employment Impact

The direct and secondary employment impacts are reported in detail in this section. While 14,498 workers are employed in the manufacturing sector, only 13,841 are considered to be a ‘direct’ impact. The remaining 637 workers in manufacturing are considered to have jobs ‘indirectly’ since they hold these jobs as a result of supplier linkages to other regional manufacturers. Figure A1 in the Appendix provides a graphical representation of the total and direct impact on employment.

Two historically important manufacturing sectors in Savannah, Transportation Equipment and Paper Manufacturing, account for the majority of the direct employment impact. As indicated in Table 3, these two sectors generate 61 percent of direct manufacturing employment in the area. Chemical Manufacturing and Food Production sectors account for another 15 percent of manufacturing jobs. Other important job creators in manufacturing are Nonmetal Mineral Products, Machinery Manufacturing, and Fabricated Metal Products.

Table 4 reports the secondary employment impact of manufacturing. This employment is supported as a result of supplier linkages to manufacturing (indirect effect) and as manufacturing-related labor income recycles through the economy (induced effect). Secondary employment totals 21,352 jobs, primarily in Transportation and Warehousing, Retail and Wholesale Trade, and Accommodation and Food Services.

	<b>Employment</b>	<b>Percent of Total</b>
Transportation Equipment	5,546	40%
Paper Manufacturing	2,906	21%
Chemical Manufacturing	1,232	9%
Food Products	857	6%
Nonmetal Mineral Products	831	6%
Machinery Mfg	517	4%
Fabricated Metal Products	505	4%
Wood Products	422	3%
Petroleum & Coal Products	293	2%
Other	732	5%
<b>Total Direct Employment</b>	<b>13,841</b>	<b>100%</b>

	<b>Secondary Employment</b>	<b>Percent of Total</b>
Transportation & Warehousing	2,793	13%
Retail Trade	2,566	12%
Wholesale Trade	2,163	10%
Accommodation & Food Services	2,088	10%
Other Services	1,957	9%
Health & Social Services	1,678	8%
Professional-Scientific-Technical Services	1,666	8%
Administrative & Waste Services	1,429	7%
Management of Companies	907	4%
Finance & Insurance	813	4%
Other	3,292	15%
<b>Total Secondary Employment</b>	<b>21,352</b>	<b>100%</b>

\*Note: Employment supported as a result of supplier linkages to manufacturing and the recycling of labor income through the regional economy.

A comparison of Table 3 and Table 4 provides a gauge of the significant economic impact arising from manufacturing in the region. The secondary impact of 21,352 jobs is 1.54 times greater than direct manufacturing employment. First, note that this factor has increased from 1.31 in 2001. In fact, the number of supply chain jobs linked to manufacturing has held steady since 2001 at approximately 12,000 jobs even as the number of manufacturing jobs declined by 14 percent, thus suggesting that the manufacturing sector is drawing more heavily on local suppliers than in the past. This fact substantially accounts for the increased employment multiplier reported earlier. The sectors in manufacturing's supply chain most affected are Transportation and Warehousing, Wholesale Trade, and Professional-Scientific-Technical Services. These are directly related to the shipment of inputs, the purchase of inputs, and the costs borne to secure technical know-how for the manufacturing sector.

Second, note that the magnitude of the number of non-manufacturing jobs outside of manufacturing's supply chain is substantial. These jobs result from the recycling of manufacturing-related labor income in the regional economy. They total 9,500 jobs, nearly as many as in manufacturing's supply chain. For example, in Table 5 (that reports the combined effect of direct and secondary employment impacts) note that the impact on Retail Trade employment is the next largest effect after Transportation and Warehousing. Retail Trade benefits from the re-spending of labor income generated by manufacturing jobs, as does Accommodation and Food Services. The effect on Other Services arises from a nearly equal split between the induced and indirect effects, but the impact on Health and Social Services is entirely due to re-spending of manufacturing-related payroll.

As can be observed in Table 5, the induced effects among several non-manufacturing sectors rival the direct economic impacts of the larger regional manufacturing sectors. In fact, the non-manufacturing sectors identified in Table 5 are larger than all but the two largest manufacturing industries (Transportation Equipment and Paper Manufacturing) in the area.

A total of 35,193 jobs in the regional economy are supported by the manufacturing sector. Overall, the multiplier for the industry is 2.54 which means that for every 100 jobs in the manufacturing sector, an additional 154 persons have non-manufacturing jobs that can be attributed to manufacturing.

<b>Table 5 Total Employment Impact</b>		
	<b>Employment</b>	<b>Percent of Total</b>
Manufacturing	14,498	41%
Transportation & Warehousing	2,793	8%
Retail Trade	2,566	7%
Wholesale Trade	2,163	6%
Accommodation & Food Services	2,088	6%
Other Services	1,957	6%
Health & Social Services	1,678	5%
Professional-Scientific-Technical Services	1,666	5%
Administrative & Waste Services	1,429	4%
Other	4,353	12%
<b>Total Employment</b>	<b>35,193</b>	<b>100%</b>

## 6. Labor Income Impact

Table 6 shows the combined direct and secondary (indirect and induced) impacts on labor income earned by workers in the region who have jobs as a result of the presence of the manufacturing sector. A total of \$1.8 billion in wages, salaries, benefits, and proprietor's income was earned in 2005 as a result of manufacturing's economic impact. Workers in the manufacturing sector alone earned just over \$1 billion in compensation and benefits.

The distribution of labor income impacts across affected non-manufacturing sectors is similar to that for employment impacts. Differences in employment versus labor income rankings are attributable to differences in relative compensation rates across the sectors. For example, while Professional-

Scientific-Technical Services ranks eighth in terms of employment impact, it ranks fourth in terms of labor income, moving ahead of more numerous, but lower paying jobs in Retail Trade.

Additional detail about manufacturing's direct and secondary economic impact on regional labor income is provided in Appendix Tables A1 and A2. Table A1 provides detail on the relative distribution of labor income within various industries in manufacturing. Figure A2 in the Appendix graphs the proportionate shares of the direct and total impact in the top ten sectors.

## 7. Business Revenue Impact

Table 7 shows the combined direct and secondary (indirect and induced) impacts on revenue earned by regional businesses as a result of the presence of manufacturing in the regional economy. The total revenue impact in 2005 was \$8.2 billion. Manufacturing businesses earned approximately \$6 billion in revenue. Outside of manufacturing, firms in Transportation and Warehousing along with Wholesale Trade earned the most revenue that can be attributed to regional manufacturing activity.

The implied business revenue multiplier was 1.4. This means that for every \$1 in revenue earned by manufacturers an additional 40 cents in business revenue was earned by other businesses in the region. The additional 40 cents was earned as a result of supplier linkages to manufacturing and as a result of the circulation of manufacturing-related payroll income through the regional economy.

	<b>\$Millions</b>	<b>Percent of Total</b>
Manufacturing	1,051	57%
Wholesale Trade	121	7%
Transportation & Warehousing	114	6%
Professional-Scientific- Technical Services	92	5%
Health & Social Services	74	4%
Retail Trade	66	4%
Other Services	51	3%
Management of Companies	49	3%
Finance & Insurance	40	2%
Accommodation & Food Services	35	2%
Other	144	8%
<b>Total</b>	<b>1,836</b>	<b>100%</b>
Note: Impact computed in 2005 dollars.		

Additional detail about manufacturing's direct and secondary economic impact on regional business revenue is provided in Appendix Tables A3 and A4. Table A3 details the relative distribution of business revenue across various industries in the manufacturing sector. For example, firms in transportation equipment earned an estimated \$2.2 billion in revenue, while those in paper manufacturing earned an estimated \$1.5 billion in revenue in 2005. These two sectors alone accounted for 64 percent of direct manufacturing revenue in 2005. (See the lower panel of Figure A3 in the Appendix.) Figure A3 in the Appendix graphs the proportionate shares of the direct and total business revenue impact in the top ten sectors.

	<b>\$Millions</b>	<b>Percent Of Total</b>
Manufacturing	6,030	74%
Transportation & Warehousing	287	3%
Wholesale Trade	283	3%
Professional-Scientific-Technical Services	198	2%
Retail Trade	140	2%
Other Services	134	2%
Health & Social Services	134	2%
Finance & Insurance	134	2%
Management of Companies	121	1%
Real Estate	112	1%
Other	630	8%
<b>Total</b>	<b>\$8,204</b>	<b>100%</b>

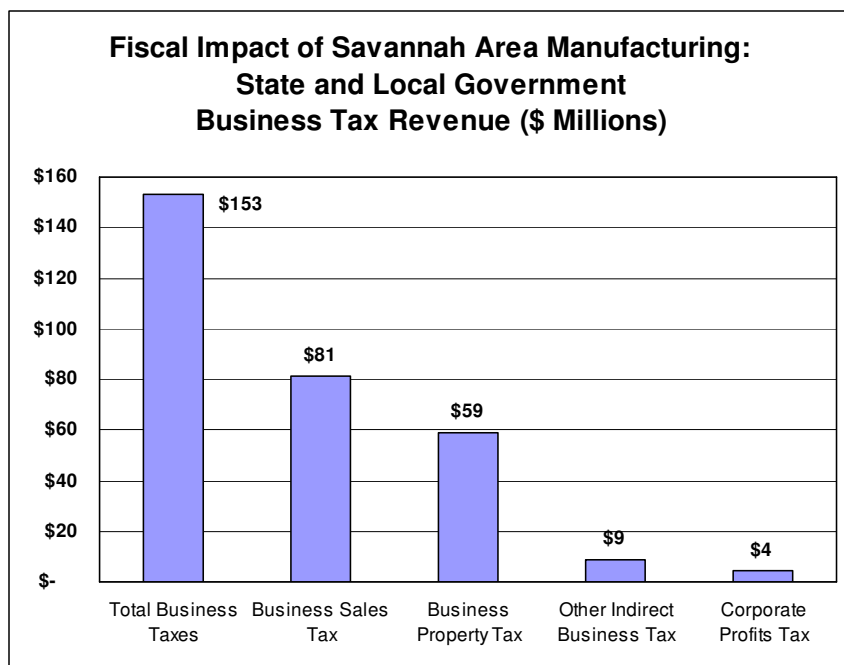
Note: Impact computed in 2005 dollars.

### 8. Fiscal Impact of Manufacturing

This section considers the fiscal impact of the regional manufacturing sector on state/local government finances as well as federal government finances. In general, when businesses and individuals go about their economic lives, they generate taxable transactions. These taxes can be as straightforward as a state sales tax or less direct as in the form of a paycheck deduction for social security taxes. In any case, when a sector such as manufacturing generates over \$8 billion in business revenue and over \$1.8 billion in labor income, the effect on government tax revenue will be substantial.

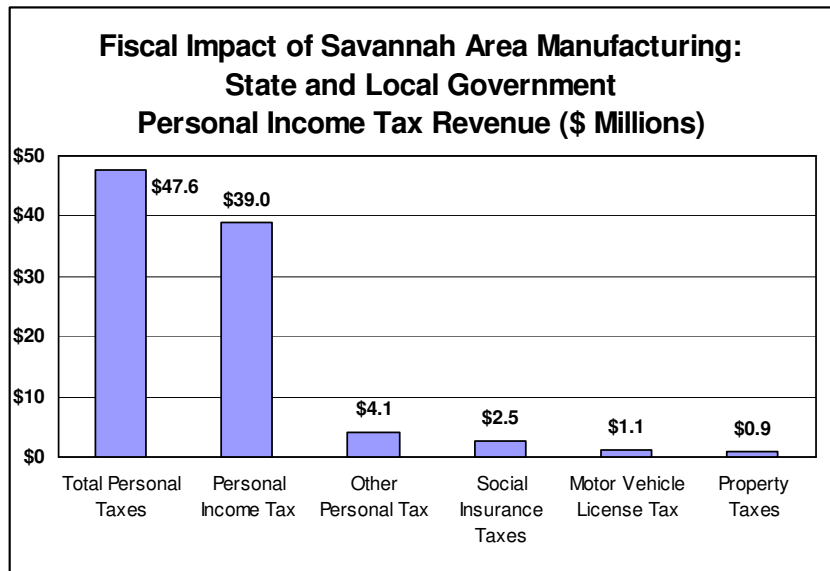
### 9. Fiscal Impact on State and Local Government

State and local governments derive approximately \$200 million in tax revenue from businesses and individuals as a result of the manufacturing activity that takes place in the Savannah area. Of this amount, \$153 million is in the form of business tax revenue. The largest component of total business taxes is sales tax



revenue that equals \$81 million. The figure on the previous page provides additional detail about the sources of business tax revenue for state and local governments. Another substantial component of business tax revenue is property taxes that yield approximately \$60 for state and local governments. Other indirect business taxes such as fees and duties along with corporate profits taxes generate \$13 million in tax revenue.

In addition to business tax revenue, manufacturing's activity also generates \$48 million in personal income tax revenue for state and local governments. The largest component is personal income taxes that total \$39 million. Other personal income taxes such as fees, licenses, social insurance taxes, and property taxes yield roughly \$8 million in tax revenue for state and local governments.



Based on previous research on the fiscal impact of manufacturing in the region, the above estimates may be considered conservative figures. An alternative model of the regional economy that includes a more sophisticated version of the structural relationships in the economy and the dynamic interaction across labor markets and output markets, for example, yielded a tax revenue impact approximately twice the size of the impact generated by the Implan model used in the current analysis. However, time and budgetary constraints precluded the use of the other model for the current analysis.

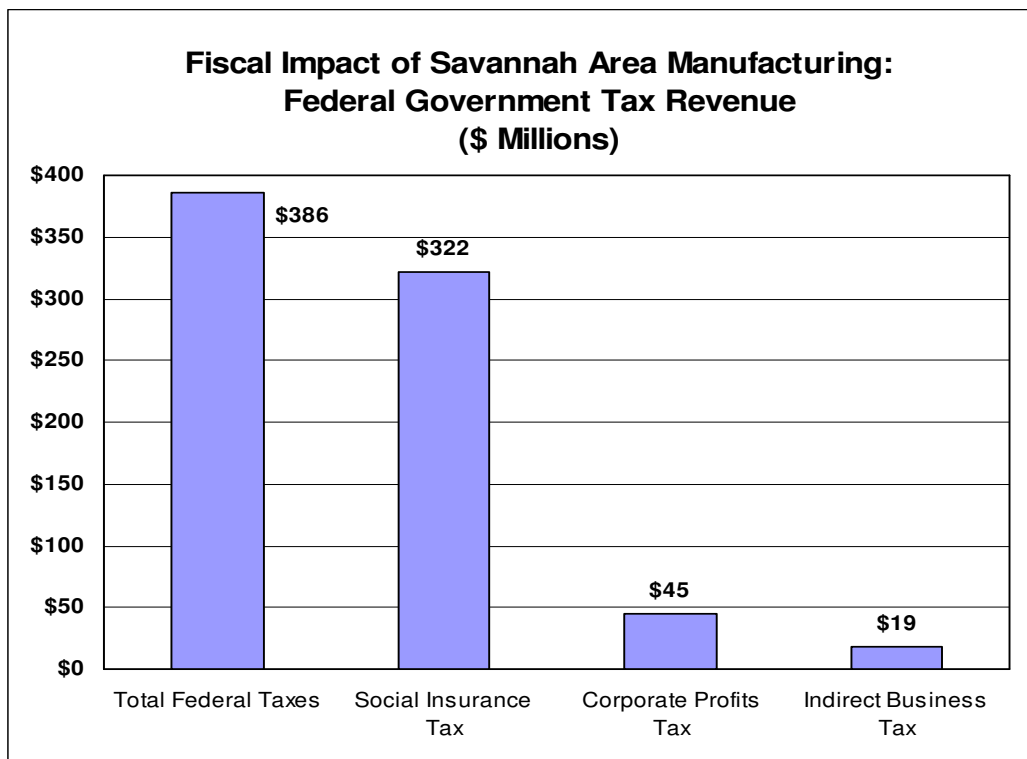
In addition, previous research on the fiscal impact of manufacturing considered the additional costs borne by state and local governments as a result of manufacturing's presence. In particular, state and local governments may make expenditures on infrastructure such as industrial park development, water or sewer line extensions, or road construction serving manufacturing establishments, or other public services directly linked to manufacturing. Governments also expend resources on public services required by employees of manufacturing and related firms. These induced expenditures arise as employees place their children in public schools, connect to public utilities, seek fire and police protection, make use of public health services, or draw on other government provided services.

In summary, the citizen-employees of manufacturing establishments and the business tax-paying establishments of the region generate tax revenue for their host governments at the same time they exhibit demands for publicly provided services. Thus, the manufacturing establishments and their employees have an impact on both the revenue and expenditure side of the fiscal ledger sheet. Previous research found that the net tax benefit to state and local governments was equal to approximately 75 percent of the tax revenue generated by manufacturing. Thus, for every

\$100 in tax revenue generated by manufacturing for state and local governments, those governments expended approximately \$25 on public services for the sector and employees in manufacturing supported jobs.

## 10. Fiscal Impact on the Federal Government

In addition to the impact on state and local governments, the region's manufacturing sector also generated approximately \$386 million in tax revenue for the federal government. Of this figure, the largest components were payroll-related. Nearly \$322 million in social insurance taxes and personal income taxes were generated for the federal government as a result of manufacturing activity in the Savannah area. Corporate profits taxes yielded \$45 million in tax revenue while other indirect business taxes such as fees, fines and licenses yielded \$19 million.

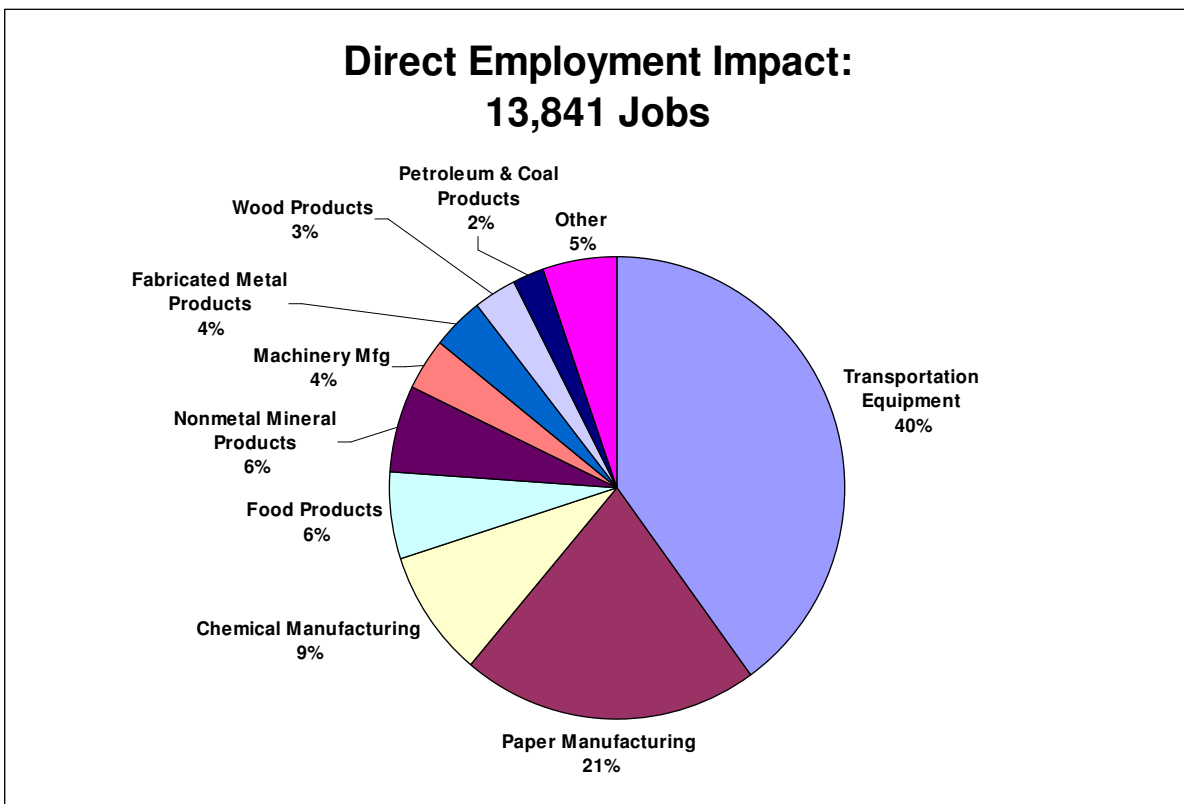
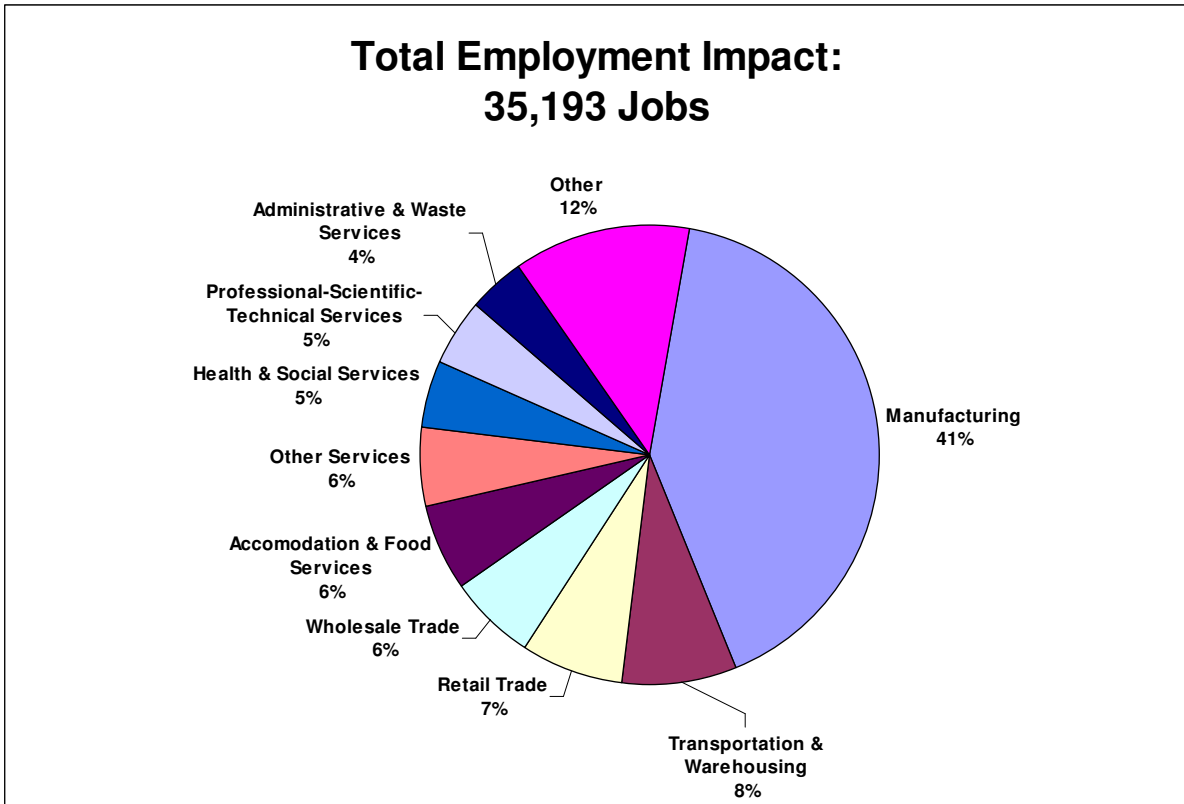


## 11. Conclusion

This study documents the numerous and substantial economic impacts of the manufacturing sector on the Savannah area economy in 2005. A total of 35,193 jobs, \$1.8 billion in labor income, and \$8.2 in business revenue is supported by the presence of 14,498 manufacturing jobs in the region. Even though the employment impact figures are lower than those from a previously completed impact study based on 2001 data, the manufacturing sector has become more closely intertwined with regional non-manufacturing establishments. This is evident in the increased secondary impacts on labor income and business revenue since 2001. Thus, the manufacturing sector's economic vitality remains a key component that influences the overall health of the regional economy.

## Appendix

**Figure A1**  
**Employment Impact of Manufacturing in the Savannah Area, 2005**



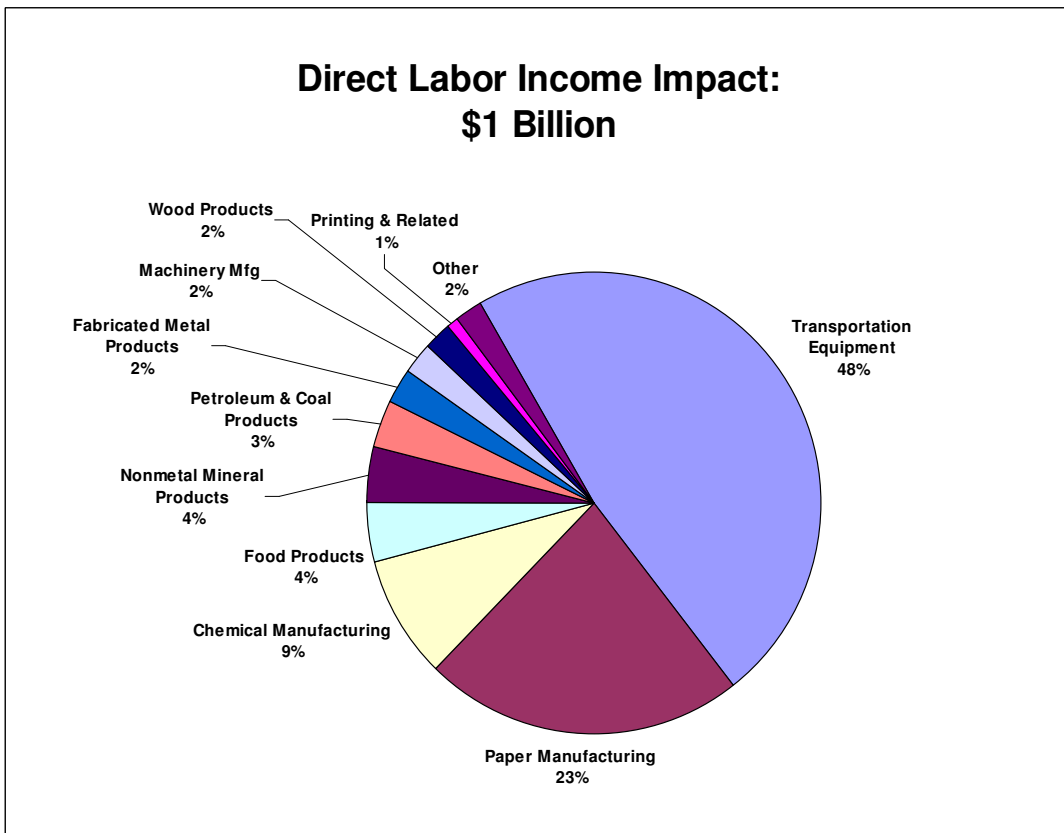
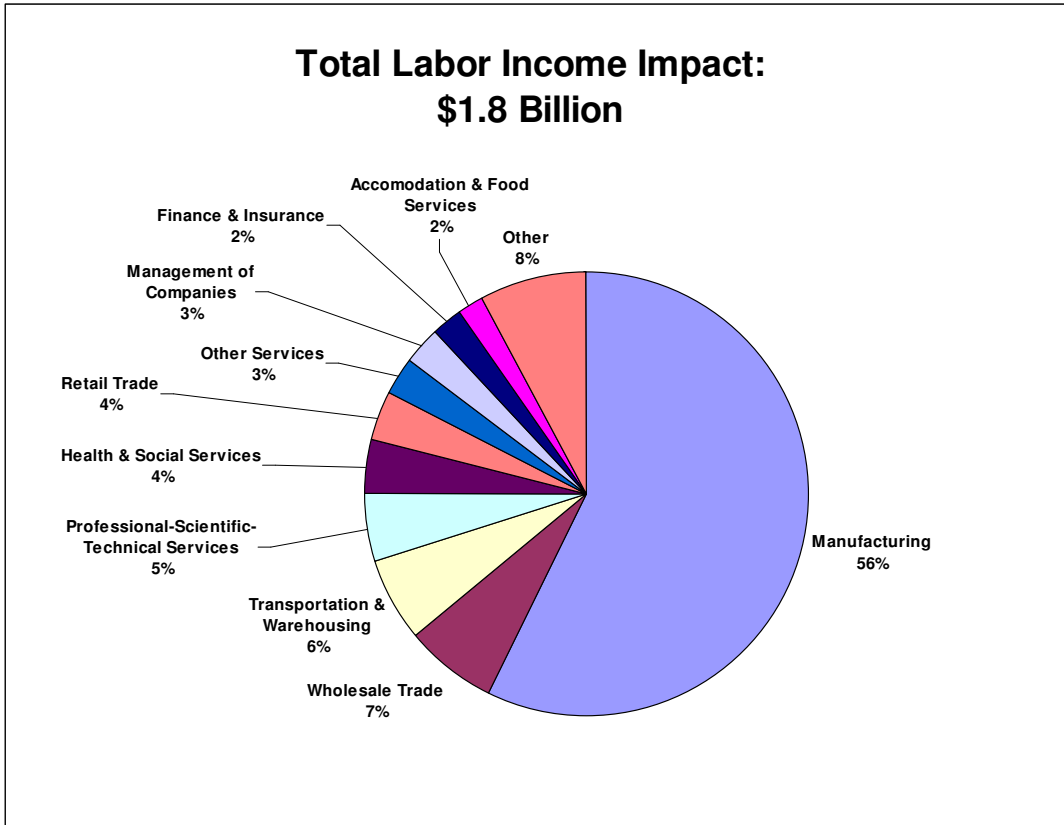
**Table A1 and A2: Direct and Secondary Labor Income Impacts**

<b>Table A1 Labor Income: Direct Impact</b>		
	<b>\$Millions</b>	<b>Percent of Total</b>
Transportation Equipment	484	48%
Paper Manufacturing	233	23%
Chemical Manufacturing	87	9%
Food Products	42	4%
Nonmetal Mineral Products	39	4%
Petroleum & Coal Products	35	3%
Fabricated Metal Products	23	2%
Machinery Mfg	23	2%
Wood Products	20	2%
Printing & Related	8	1%
Other	21	2%
<b>Total</b>	<b>1,014</b>	<b>100%</b>

<b>Table A2 Labor Income: Secondary* Impact</b>		
	<b>\$Millions</b>	<b>Percent of Total</b>
Wholesale Trade	121	15%
Transportation & Warehousing	114	14%
Professional-Scientific-Technical Services	92	11%
Health & Social Services	74	9%
Retail Trade	66	8%
Other Services	51	6%
Management of Companies	49	6%
Finance & Insurance	40	5%
Manufacturing	36	4%
Accommodation & Food Services	35	4%
Other	145	18%
<b>Total</b>	<b>822</b>	<b>100%</b>

\*Note: This income is earned by workers whose jobs are supported by the activity in manufacturing's supply chain and the recycling of labor income through the regional economy; in 2005 dollars. Labor Income includes salaries, wages, benefits, and proprietor's income.

**Figure A2**  
**Labor Income Impact of Manufacturing in the Savannah Area, 2005**



**Table A3 and A4: Direct and Secondary Business Revenue Impacts**

<b>Table A3 Business Revenue: Direct Impact</b>		
	<b>\$Millions</b>	<b>Percent of Total</b>
Transportation Equipment	2,236	39%
Paper Manufacturing	1,498	26%
Chemical Manufacturing	609	11%
Food Products	526	9%
Petroleum & Coal Products	311	5%
Nonmetal Mineral Products	184	3%
Machinery Mfg	169	3%
Wood Products	89	2%
Fabricated Metal Products	76	1%
Other	95	2%
<b>Total</b>	<b>5,791</b>	

<b>Table A4 Business Revenue: Secondary* Impact</b>		
	<b>\$Millions</b>	<b>Percent of Total</b>
Transportation & Warehousing	287	12%
Wholesale Trade	283	12%
Manufacturing	240	10%
Professional-Scientific- Technical Services	198	8%
Retail Trade	140	6%
Other Services	134	6%
Health & Social Services	134	6%
Finance & Insurance	134	6%
Management of Companies	121	5%
Real Estate	112	5%
Other	630	26%
<b>Total</b>	<b>2,413</b>	
*Note: This income is earned by workers whose jobs are supported by the activity in manufacturing's supply chain and the recycling of labor income through the regional economy; in 2005 dollars.		

**Figure A3**  
**Business Revenue Impact of Manufacturing in the Savannah Area, 2005**

