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**The Economic Impact of  
Georgia's Deepwater Ports  
On Georgia's Economy in FY 2014**

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## Executive Summary

*This summary highlights some of the findings regarding the economic impact of Georgia's deepwater ports on Georgia's economy in fiscal year 2014. The ensuing sections contain the comprehensive technical report.*

The statewide economic impact of Georgia's deepwater ports in fiscal year 2014 includes:

- **\$84.1 billion in sales (9.6 percent of Georgia's total sales);**
- **\$33.2 billion in state GDP (7.2 percent of Georgia's total GDP);**
- **\$20.4 billion in income (5.3 percent of Georgia's total personal income);**
- **369,193 full- and part-time jobs (8.4 percent of Georgia's total employment);**
- **\$4.5 billion in federal taxes;**
- **\$1.3 billion in state taxes; and**
- **\$1 billion in local taxes.**

These economic impacts demonstrate that continued emphasis on imports and exports through Georgia's deepwater ports translates into jobs, higher incomes, greater production of goods and services, and revenue collections for government. Ports operations help to preserve Georgia's manufacturing base, and foster growth of the state's massive logistics, distribution, and warehousing cluster.

### Output Impacts

Measured in the simplest and broadest terms, the total economic impact of Georgia's deepwater ports on Georgia's economy is \$84.1 billion, which is 9.6 percent of Georgia's output in FY 2014. Out of the total, \$50.7 billion represents initial spending, or direct economic impact; \$33.4 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total output impact (\$84.1 billion) by initial spending (\$50.7 billion) yields an average multiplier value of 1.66. On average, therefore, every dollar initially spent by the ports industry and ports users generates an additional 66 cents for the state's economy.

### State GDP (Value Added) Impacts

Measured in terms of GDP or value added, Georgia's deepwater ports contribute \$33.2 billion to the state's economy in fiscal year 2014, which is 7.2 percent of Georgia's total GDP. Out of the total, \$15.9 billion represents the direct effects of initial spending, or the direct economic impact; \$17.3 billion is indirect and induced spending, or the re-spending (multiplier) impact.

### Income Impacts

Measured in terms of income, Georgia's deepwater ports contributed \$20.4 billion to the state's economy in fiscal year 2014, which is 5.3 percent of Georgia's total personal income. Of the total, \$15.9 billion represents the direct ef-

fects of initial spending, or the direct economic impact; \$11 billion is indirect and induced spending, or the re-spending (multiplier) impact.

### **Employment Impacts**

The economic impact of Georgia's deepwater ports probably is most easily understood in terms of its effects on employment. Measured in these terms, Georgia's deepwater ports support 369,193 full- and part-time jobs, which is 8.4 percent of Georgia's total employment (as defined by a survey of households). This means that one job out of every twelve is in some way dependent on the ports. Of the FY 2014 total employment impact, 148,602 jobs represent the direct effects of initial spending, or the direct economic impact; 220,591 jobs constitute the indirect and induced effect of spending, or the re-spending impact.

### **Tax Impacts**

**State:** The total economic impact of Georgia's deepwater ports on tax collections by state government in fiscal year 2014 is \$1.3 billion.

**Local:** The total economic impact of Georgia's deepwater ports on tax collections by local governments in fiscal year 2014 is \$1 billion.

**Federal:** The total economic impact of Georgia's deepwater ports on tax collections by the federal government in fiscal year 2014 is \$4.5 billion.

Deepwater ports are one of Georgia's strongest economic engines, fostering the development of virtually every industry. The ports are especially supportive of other forms of transportation, manufacturing, wholesale/distribution centers, and agriculture. The outstanding performance of Georgia's deepwater ports relative to other American ports reflects strong competitive advantages that allowed Georgia's ports to expand their share of activities. These advantages are largely the result of strategic investments in port facilities by the State of Georgia over many years.

Georgia's deepwater ports industry consists of public marine terminals in Savannah and Brunswick owned by the Georgia Ports Authority as well as private marine terminals. Georgia's deepwater ports are thriving, and Savannah's port is one of the fastest growing container ports in the world. The superb performance of Georgia's ports relative to other ports reflects strong comparative advantages that allowed them to expand their shares of regional and national waterborne cargo traffic. These comparative advantages are the result of a series of strategic expansions over many years.

It is obvious that Georgia's deepwater ports create substantial economic impacts on the state in terms of output (sales), state GDP, income, employment, and tax revenues for federal, state, and local governments. Nonetheless, this study provides a quantitative assessment of the changes in overall economic activity as a result of the presence and operations of Georgia's deepwater ports in fiscal year 2014.

The facilities owned by the Georgia Ports Authority in Savannah and Brunswick will be referred to as the Port of Savannah and the Port of Brunswick, respectively; and cargo volumes, expenditures, and impact estimates for these facilities will be reported separately from those for private facilities/docks. The amounts expressed in this report (including the executive summary and appendices) are reported in current (2014) dollars.

## Economic Impact Highlights

The fundamental finding of this study is that the strategic decisions by state government to invest public resources in the two deepwater ports have contributed to substantial economic activity in Georgia. The statewide economic impact of the deepwater ports in fiscal year 2014 includes:

- \$84.1 billion in sales (9.6 percent of Georgia's total sales);
- \$33.2 billion in state GDP (7.2 percent of Georgia's total GDP);
- \$20.4 billion in income (5.3 percent of Georgia's total personal income);
- 369,193 full- and part-time jobs (8.4 percent of Georgia's total employment);
- \$4.5 billion in federal taxes;
- \$1.3 billion in state taxes; and
- \$1 billion in local taxes.

Measured in the simplest and broadest possible terms, the total economic impact of Georgia's deepwater ports on Georgia's economy is \$84.1 billion. This amount represents the combined impact of the ports industry and ports users on output, which can be thought of as the equivalent of business revenue, sales, or gross receipts. The \$84.1 billion output impact accounts for 9.6 percent of Georgia's total output in FY 2014. Out of the \$84.1 billion, \$4.1 billion (5 percent) represents the results from the ports industry and \$80 billion (95 percent) represents the results from ports users.

Of the FY 2014 total output impact, \$50.7 billion represents initial spending, or direct economic impact; and \$33.4 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total output impact (\$84.1 billion) by initial spending (\$50.7 billion) yields an average multiplier value of 1.66. On average, therefore, every dollar initially spent by either the ports industry and ports users generates an additional 66 cents for the economy.

Expressed in other dimensions, the ports industry and port users together support \$33.2 billion in state GDP and \$20.4 billion in income, which account for 7.2 percent and 5.3 percent of Georgia's GDP and total personal income, respectively. The total economic impact on employment is 369,193 full- and part-time jobs. The combined impact of

the ports industry and ports users on state tax collections is \$1.3 billion. The combined impact of the ports industry and ports users on local tax collections is \$1 billion. The combined impact on federal tax collections is \$4.5 billion.

The distribution of total economic impacts of cargo-based activity at the Georgia Ports Authority's facilities in Savannah and Brunswick by mode of cargo indicates that containerized cargo accounts for 90 percent of the reported economic impacts. Auto/vehicle cargo accounts for 5 percent of the reported impacts, and breakbulk cargo accounts for 3 percent of the reported impacts. Liquid bulk and dry bulk cargoes each account for about 1 percent of reported impacts.

## The Concept of Port Economic Impact

The total economic impact of Georgia's deepwater ports consists of (1) direct spending by the ports industry, (2) direct spending by ports users, and (3) the secondary or indirect and induced spending—often referred to as the multiplier effects—created as direct expenditures by either the ports industry or ports users are re-spent.

The ports industry is defined to include economic activity (spending) that involves the transportation of waterborne cargo and ports services, including the ports themselves, the companies engaged in deepwater transportation as well as companies that provide ship services, and companies that provide inland transportation of waterborne cargo. Ports investment (capital expenditures) for additions and/or improvements to Georgia's deepwater ports also are included as part of the ports industry. This definition of the ports industry is identical to the definition used by the U.S. Department of Transportation, Maritime Administration in the MARAD Port Economic Impact Kit. Thus, the ports industry includes activities that take place on the vessel, at the terminal, and during the inland movement of cargo. Since the firms and enterprises that provide these activities locate in Georgia because of the existence of the ports, all of their activity (spending) can be counted as direct economic impact.

Ports users are mainly manufacturers, wholesalers, distributors, and warehousing and storage firms that use the ports to transport materials and/or products. Although most users are importers and exporters, some ship materials or products to and/or from domestic locations. All of the economic activity (spending) generated by ports users whose decision to locate, remain, and/or expand in Georgia hinges on the presence of these deepwater ports can be counted as direct economic impact. But since most ports users are only partially dependent on the presence of Georgia's deepwater ports, only a portion of their total economic activity is counted as direct economic impact. For example, firms that use Georgia's deepwater ports due to cost advantages over other ports or other modes of transportation are only partially dependent on Georgia's ports. Also, users that only ship a portion of their production and materials through Georgia's deepwater ports are only partially dependent on the ports. To avoid double counting, ports users' activity is defined to exclude their transportation expenditures associated with the waterborne cargo that is handled by Georgia's ports industry.

Secondary spending often is referred to as the multiplier effect of direct spending. There are two types of secondary spending: indirect spending and induced spending. Indirect spending refers to the changes in inter-industry purchases as Georgia's industries respond to the additional demands triggered by spending by either the ports industry or ports users. It consists of the ripples of activity that are created when the ports industry or ports users purchase goods or services from other industries located in the state. Induced spending refers to the additional demands triggered by spending by households as their income increases due to changes in production. Basically, the induced impact captures the ripples of activity that are created when households spend more due to the increases in their earnings that were generated by the direct and indirect spending.

The sum of the direct, indirect, and induced economic impacts is the total economic impact, which often is expressed in terms of output (sales), state GDP, income, or employment. Output is gross receipts or sales, plus or minus inventory. Total output impacts are the most inclusive, largest, measure of economic impact. Because of their size, output impacts typically are emphasized in economic impact studies and receive much media attention. One problem with output as a measure of economic impact, however, is that it includes the value of inputs produced by other industries, which means that there inevitably is some double counting of economic activity. The other measures of economic

impact (GDP, income, and employment) are free from double counting and provide a much more realistic measure of the true economic impact of Georgia's deepwater ports.

State GDP is value added, which consists of employee compensation, proprietor income, other property income, and indirect business taxes. Value added is equivalent to gross output (sales or receipts and other operating income, commodity taxes, and inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). It is often referred to as the state-level counterpart of the nation's gross domestic product (GDP). Income is all forms of employment income, including wages, salaries, and proprietors' incomes. It does not include non-wage compensation (e.g., pensions and health insurance), transfer payments (e.g., welfare or social security benefits), or unearned income (e.g., dividends, interest, and rent). Employment includes total wage and salary employees as well as self-employed individuals. It encompasses both full- and part-time jobs and is measured in annual average jobs.

## Methodology

Estimating the economic impact of Georgia's deepwater ports involved two distinct steps. First, data regarding tonnage by type and capital expenditures were obtained from the Georgia Ports Authority. The tonnage and capital expenditure data were imported into the U.S. Department of Transportation's MARAD Port Economic Impact Kit to estimate the direct, indirect, induced, and total economic impacts of the ports industry. Second, ports users' spending was estimated. Ports users were surveyed in 2003 to determine the degree to which they depend on Georgia's deepwater ports. To help correct for non-response and/or incomplete responses and to update the analysis, several types of government and administrative data were used to assess the proportion of revenue or sales in various industries that could be attributed to ports usage. The IMPLAN Version 3.0 economic impact assessment software system was used to estimate the indirect and induced economic impacts of the ports-related portion of spending by users. Finally, the statewide economic impact estimates were allocated to individual counties based on each county's economic structure and PIERS trade data regarding county-level imports and exports (measured in terms of short tons and estimated value).

### Estimating the Ports Industry's Economic Impact

A revised version of the U.S. Department of Transportation's MARAD port economic impact model that was built specifically for Georgia was used to estimate the direct, indirect, and induced economic impact of spending by the ports industry. A detailed discussion of the model, including its structure, methods, and use can be found in the two-volume *MARAD Port Economic Impact Kit*.

The Georgia Ports Authority provided the fiscal year 2011 data on cargo volume (import and export) by mode of transportation for the Savannah and Brunswick facilities that the MARAD model required. The cargo volume reported for the Port of Savannah includes data for the Garden City and Ocean terminals. The cargo volume reported for the Port of Brunswick includes data for Colonel's Island, Brunswick East River/Lanier Docks, and the Mayor's Point Terminal. Table 1 summarizes cargo volume for cars, containerized cargo, breakbulk cargo, dry bulk cargo, and liquid bulk cargo. Cargo volume is expressed on a per-vehicle basis for auto/vehicle cargo; a per-TEU (Twenty Foot Equivalent Unit) basis for containerized cargo; and a per-short ton (2,000 pounds) for breakbulk, dry bulk, and liquid bulk. In addition, the Georgia Ports Authority provided estimates of cargo volume for the private facilities/docks based on an analysis of data obtained from PIERS, and the estimates are summarized in Table 2. The Georgia Ports Authority also provided capital expenditures (ports investment) in FY 2014 for the facilities that it owns. Capital expenditures by the private facilities/docks are not included in this analysis, however.

### Estimating the Ports Users' Economic Impact

Data and insights from two surveys were used to estimate the port users' economic impacts. For example, in Spring/Summer 2014, the Selig Center collaborated with the Georgia Governor's Development Council and the Center of Innovation for Logistics to survey representatives from Georgia's strategic industries (as well as economic develop-

ment and transportation experts) regarding Georgia's ports and their impact on transportation competitiveness. Also, a confidential survey of the entire population of current users of the Georgia Ports Authority's facilities was conducted in 2003 to identify the industries that utilize the ports, their sales, and the extent to which they depend on the ports. *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2003* (April 2004) contains both the survey instrument and a brief summary of responses. Secondary sources of information supplemented and updated the information obtained from the survey. These include: (1) The U.S. Department of Commerce, Bureau of Economic Analysis' historical data on gross domestic product and output, gross state product, and personal income. (2) The U.S. Department of Labor's and the Georgia Department of Labor's historical data on employment by industry. (3) U.S. Department of Transportation, Maritime Administration, Office of Ports and Domestic Shipping on the economic impact of ports users at the national level. (4) A study of the economic impacts of the U.S. Deepwater Port System prepared for the American Association of Port Authorities. (5) The Georgia Department of Community Affairs and the Department of Industry Trade and Tourism's summary information from their survey of manufacturers regarding their international trade activity and current and future exports of their products. (6) Data provided by PIERS on the volume and estimated value of imports and exports for Georgia.

Based on an analysis of the surveys and secondary information sources, it was determined that port-related sales (output) totaled \$51 billion in Georgia in fiscal year 2014, or about 6 percent of Georgia's total output that year. Manufacturers were estimated to account for about 81 percent of port-related sales, while wholesale/distribution/warehousing/storage activities accounted for about 10 percent of port-related sales, and agriculture, forestry, and mining accounted for the remaining 9 percent.

The IMPLAN Version 3.0 modeling system was used to estimate the indirect and induced economic impact of ports users' direct expenditures. A detailed discussion of the IMPLAN modeling system, including its structure, methods, and use, can be found at [www.implan.com](http://www.implan.com).

## The Results

The total economic impact of Georgia's deepwater ports on output, GDP, income, and employment is summarized in Table 3. The direct, indirect plus induced, and the total economic impacts of Georgia's deepwater ports in terms of output, income, and gross state product are reported in Table 4. Similarly, Table 5 and Table 6 report the employment and tax impacts, respectively. Table 7 reports the overall multiplier values for output, employment, income, and GDP. Table 8 reports the total economic impacts of cargo-based activity by mode of cargo at the Georgia Ports Authority's operations in Savannah and Brunswick. Table 9 shows the ports industry's employment impact by occupation. Table 10 details the employment impact of port users by industry. Table 11 reports the total employment impact by county. More detailed tabulations of the economic impact of Georgia's deepwater ports are included in Appendix 1.

### ■ Output Impacts ■

Measured in the broadest terms, the total economic impact of the Port of Savannah and the Port of Brunswick on Georgia's economy is \$84.1 billion, which is 9.6 percent of Georgia's output in FY 2014.

Out of the total, \$4.1 billion (5 percent) represents the results from the ports industry, of which the GPA's operations at the Port of Savannah contribute 84 percent. Ports users' total output impact, however, is over nineteen times greater than that of the ports industry — \$80 billion. Indeed, ports users account for 95 percent of the total output impact of Georgia's deepwater ports.

Of the FY 2014 total output impact, \$50.7 billion represents initial spending, or direct economic impact; \$33.4 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total output impact (\$84.1 billion) by initial spending (\$50.7 billion) yields an average multiplier value of 1.66. On average, therefore, every dollar initially spent by either the ports industry or ports users generates an additional 66 cents for the state's economy.

## ■ State GDP (Value Added) Impacts ■

Measured in terms of GDP or value added, Georgia's deepwater ports contributed \$33.2 billion to the state's economy in FY 2014, which is 7.2 percent of Georgia's total GDP. Out of the total GDP impact, \$2 billion (6 percent) represents the results from the ports industry. The GPA's operations at the Port of Savannah contribute 84 percent of this amount. But the \$31.2 billion GDP impact attributed to ports users is almost sixteen times greater than that of the port industry, so users account for 94 percent of the total GDP impact of Georgia's deepwater ports.

Of the FY 2014 total GDP impact, \$15.9 billion represents the direct effects of initial spending, or the direct economic impact; \$17.3 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total GDP impact (\$33.2 billion) by the direct GDP impact (\$15.9 billion) yields an average multiplier value of 2.09. On average, therefore, every dollar of direct GDP produced by the ports industry and ports users yields an additional 109 cents for the state's economy.

## ■ Income Impacts ■

Measured in terms of income, Georgia's deepwater ports contributed \$20.4 billion to the state's economy in fiscal year 2014, which is 5.3 percent of Georgia's total personal income. Out of the total, \$1.4 billion (7 percent) represents the results from the ports industry. The GPA's operations at the Port of Savannah contribute 84 percent of this amount, but ports users' \$19 billion income impact is over thirteen times greater. Indeed, users account for 93 percent of the total income impact of Georgia's deepwater ports.

Of the FY 2014 total income impact, \$9.4 billion represents the direct effects of initial spending, or the direct economic impact; \$11 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total income impact (\$20.4 billion) by the direct income impact (\$9.4 billion) yields an average multiplier value of 2.16. On average, therefore, every dollar of direct income produced by the ports industry and ports users generates an additional 116 cents for the state's economy.

## ■ Employment Impacts ■

The economic impact of Georgia's deepwater ports probably is most easily understood in terms of its effects on employment. Measured in these terms, Georgia's deepwater ports support 369,193 full- and part-time jobs, which equal 8.4 percent of Georgia's total employment—based on the household survey definition of employment.

This means that one job out of every twelve is in some way dependent on the ports. Out of the 369,193 jobs, 32,888 (9 percent) represent the results from the ports industry. The GPA's operations at the Port of Savannah contribute 83 percent of these 32,888 jobs, but ports users' 306,305-job impact is over ten times greater, so users account for 91 percent of the total employment impact of Georgia's deepwater ports.

Of the FY 2014 total employment impact, 148,602 jobs represent the direct effects of initial spending, or the direct economic impact; 220,591 jobs constitute the indirect and induced effect of spending, or the re-spending (multiplier) impact. Dividing the FY 2014 total job impact (369,193 jobs) by the direct job impact (148,602 jobs) yields an average multiplier value of 2.48. On average, therefore, each job created directly by the ports industry and ports users yields an additional 1.5 jobs in the state.

## ■ State Tax Impact ■

Spending by the ports industry and ports users generate substantial tax revenue for Georgia's state government. The total economic impact of Georgia's deepwater ports on tax collections by state government in fiscal year 2014 is \$1.3 billion.

## ■ Local Tax Impact ■

Spending by the ports industry and ports users generate substantial tax revenue for Georgia's local governments. The total economic impact of Georgia's deepwater ports on tax collections by local governments in fiscal year 2014 is \$1 billion.



## ■ Federal Tax Impact ■

Spending by the ports industry and ports users generate substantial tax revenue for the federal government. The total economic impact of Georgia's deepwater ports on tax collections by the federal government in fiscal year 2014 is \$4.5 billion.

### Comparisons to Previous Estimates

In 2012, the Georgia Ports Authority retained the University of Georgia's Terry College of Business to estimate the economic impact of Georgia's deepwater ports on the state's economy. Economic impact estimates for FY 2011 were published in *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2011* (2012). The methods used were very similar to those used in this study. The FY 2011 impacts of Georgia's deepwater ports were \$66.9 billion in sales, \$32.4 billion in state GDP, \$18.5 billion in income, and 352,146 full- and part-time jobs. The job impact therefore is 4.8 percent higher in FY 2014 than in FY 2011. Over that same period, the total number of jobs in Georgia increased by 3.9 percent. Thus the employment impact of Georgia's deepwater ports rose more quickly than the overall number of jobs in the state, implying that the ports are increasingly important drivers of statewide employment growth. In fact, the additional 17,047 jobs supported by the ports account for over 10 percent of statewide job growth.

In 2010, the Georgia Ports Authority asked for an updated economic impact study. Economic impact estimates for FY 2009 were published in *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy* (2010). The study found that the FY 2009 impact of the ports were \$61.7 billion in sales, \$26.8 billion in state GDP, \$15.5 billion in income, and 295,443 full- and part-time jobs.

In 2007, the Georgia Ports Authority retained the University of Georgia's Terry College of Business to estimate the economic impact of Georgia's deepwater ports on the state's economy. Economic impact estimates for FY 2006 were published in *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy* (2007). The methods used were very similar to those used in this study as well as to those used in the study cited in the previous paragraph. The FY 2006 impact of Georgia's deepwater ports were \$55.8 billion in sales, \$24.8 billion in state GDP, \$14.9 billion in income, and 286,476 full- and part-time jobs.

In 2004, the Georgia Ports Authority asked the University of Georgia's Terry College of Business and Savannah State University to estimate the economic impact of Georgia's deepwater ports on the state's economy. Economic impact estimates for FY 2003 were published in *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy* (2004). The study found that the FY 2003 impact of Georgia's deepwater ports were \$35.4 billion in sales, \$17.1 billion in state GDP, \$10.8 billion in income, and 275,968 full- and part-time jobs.

In 1997, Booz-Allen & Hamilton, Inc. conducted the study and published its results (for 1996) in *Economic Impacts of Georgia's Deepwater Ports of Savannah and Brunswick* (March 20, 1998). Instead of using actual cargo volumes and standard macroeconomic input-output modeling systems (e.g., MARAD Port Economic Impact Kit, IMPLAN, RIMS, or REMI) to measure direct, indirect, and induced economic impacts, Booz-Allen & Hamilton relied primarily on direct survey methods, which they said is "somewhat unique." Due to the unique character of their methods as well as the use of non-conventional definitions of standard economic impact terms, it is very difficult to make meaningful direct comparisons of their results to the results of this study, or to those of any other port economic impact study.

Booz-Allen & Hamilton found that the total economic impact of Georgia's deepwater ports on output (sales) and employment were \$22.3 billion and 76,672 jobs, respectively. Their estimates of the economic impact on tax collections by state and local governments was \$569 million, and that the economic impact on wages was \$1.7 billion. The estimates produced by the Terry College of Business (based on data for FY 2003) were considerably larger. The order of magnitude of Booz-Allen & Hamilton's output impact (\$22.3 billion), however, appears to be somewhat reasonable considering that: (1) the Port of Savannah and the Port of Brunswick both experienced exceptionally rapid growth in cargo volumes from 1996-2003 (implying that direct spending by the ports industry was much smaller in 1996 than it

was in 2003); (2) Georgia's overall economy was much smaller in 1996 than it was in 2003 (implying that ports-related impacts were much smaller in 1996 than in 2003); (3) the survey-based approach did not capture all of the direct economic impacts; (4) the survey-based approach is incapable of capturing many of the indirect economic impacts; and (5) the survey-based approach does not capture any of the induced economic impacts.

In 1999, Georgia Southern University applied more conventional input-output modeling techniques to re-estimate the ports' 1996 economic impact. But it appears that they basically relied on Booz-Allen & Hamilton's estimate of direct economic impact. Nonetheless, Georgia Southern's use of the REMI model to re-estimate both the indirect and induced economic impacts more fully captured the indirect and induced economic impacts of the direct spending (as estimated by Booz-Allen & Hamilton). Consequently, their impact estimates were somewhat higher than those produced by Booz-Allen & Hamilton.

### Closing Comment

**T**his study investigates the economic impact of Georgia's deepwater ports, and finds substantial economic impacts in terms of output (gross receipts or sales), state GDP, income, employment, state and local tax revenues, and federal tax revenues. The findings are based on analytical methods that are standard in regional economics and economic consulting.

Table 1

**Cargo Volume by Mode of Transportation  
at the Georgia Ports Authority's Facilities in Savannah and Brunswick  
(Import and Export) in FY 2014**

Cargo Type	Cargo Volume <sup>1</sup>			Percent of Total by Mode	
	Mode	Total	Savannah		Brunswick
Autos	Long Dist. Truck	7,913	7,913	0	1
	Short Dist. Truck	553,181	13,715	539,466	79
	Rail	139,614	4,747	134,867	20
	Total	700,708	26,375	674,333	100
Containerized	Long Dist. Truck	1,222,283	1,222,283	0	39
	Short Dist. Truck	1,317,976	1,317,976	0	42
	Rail	595,758	595,758	0	19
	Total	3,136,017	3,136,017	0	100
Breakbulk	Long Dist. Truck	354,014	322,477	31,537	29
	Short Dist. Truck	607,538	560,232	47,306	49
	Rail	276,026	197,183	78,843	22
	Total	1,237,578	1,079,892	157,686	100
Dry Bulk	Long Dist. Truck	90,016	0	90,016	5
	Short Dist. Truck	590,233	0	590,233	33
	Rail	1,120,077	0	1,120,077	62
	Total	1,800,326	0	1,800,326	100
Liquid Bulk	Long Dist. Truck	33,296	0	33,296	4
	Short Dist. Truck	258,274	125,090	133,184	31
	Rail	533,280	533,280	0	65
	Total	824,850	658,370	166,480	100

<sup>1</sup> Cargo volume is expressed on a per-vehicle basis for auto/vehicle cargo; a per-TEU ("Twenty-Foot Equivalent") basis for containerized cargo; a per-short ton (2,000 pounds) basis for breakbulk, dry bulk, and liquid bulk cargo. Cargo volume is for the public facilities owned by the Georgia Ports Authority and does not include cargo volume for private facilities/docks. Breakbulk does not include autos.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), 2015.

**Table 2**

**Cargo Volume for Private Facilities/Docks  
in Savannah and Brunswick  
(Import and Export) in FY 2014**

Cargo Type	Cargo Volume <sup>1</sup>
	Total
Breakbulk	3,592,270
Dry Bulk	512,894
Liquid Bulk	1,586,455
<b>Total</b>	<b>5,691,619</b>

<sup>1</sup>Cargo volume is expressed on a per-short ton (2,000 pounds) basis. Cargo volume is for the privately owned facilities/docks and does not include cargo volume for facilities owned by the Georgia Ports Authority.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

**Table 3**

**Summary of the Economic Impact  
of Georgia's Deepwater Ports on Georgia  
in Fiscal Year 2014  
(millions of 2014 dollars)**

	Total Economic Impact on:			
	Output	State GDP	Income	Employment (jobs)
Ports Industry	4,078	2,005	1,415	32,888
Savannah Cargo-Based Activity	3,421	1,680	1,184	27,425
Brunswick Cargo-Based Activity	254	124	82	1,886
Ports Investment	61	33	25	514
Private Facilities/Docks	342	168	124	3,063
Ports Users	79,987	31,186	18,965	336,305
<b>Total Output/Revenue Impact</b>	<b>84,065</b>	<b>33,191</b>	<b>20,380</b>	<b>369,193</b>

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity refers to impacts generated by the public facilities owned by the Georgia Ports Authority. Private facilities/docks refers to impacts generated by privately owned facilities/docks. Ports users are firms/enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

Table 4

**Economic Impact of Georgia's Deepwater Ports  
on Output (Revenue), Income, and State GDP  
in Georgia, Fiscal Year 2014  
(millions of 2014 dollars)**

	Direct Economic Impact on Output/Revenue	Indirect & Induced Economic Impact on Output/Revenue	Total Economic Impact on Output/Revenue
Ports Industry	2,656	1,423	4,078
Savannah Cargo-Based Activity	2,230	1,192	3,421
Brunswick Cargo-Based Activity	166	88	254
Ports Investment	37	24	61
Private Facilities/Docks	223	119	342
Ports Users	48,044	31,942	79,987
Total Output/Revenue Impact	50,700	33,365	84,065
	Direct Economic Impact on Income	Indirect & Induced Economic Impact on Income	Total Economic Impact on Income
Ports Industry	950	466	1,415
Savannah Cargo-Based Activity	794	390	1,184
Brunswick Cargo-Based Activity	54	29	82
Ports Investment	17	8	25
Private Facilities/Docks	85	39	124
Ports Users	8,479	10,485	18,965
Total Income Impact	9,429	10,951	20,380
	Direct Economic Impact on State GDP	Indirect & Induced Economic Impact on State GDP	Total Economic Impact on State GDP
Ports Industry	1,309	696	2,005
Savannah Cargo-Based Activity	1,098	583	1,680
Brunswick Cargo-Based Activity	81	43	124
Ports Investment	21	12	33
Private Facilities/Docks	109	58	168
Ports Users	14,584	16,602	31,186
Total State GDP	15,893	17,298	33,191

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and refers to impacts generated by the public facilities owned by the Georgia Ports Authority. Private facilities/docks refers to impacts generated by privately owned facilities/docks. Ports users are firms enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

Table 5

**Economic Impact of Georgia's Deepwater Ports  
on Employment in Georgia, Fiscal Year 2014  
(full- and part-time jobs)**

	Direct Economic Impact on Employment	Indirect & Induced Economic Impact on Employment	Total Economic Impact on Employment
Ports Industry	21,542	11,346	32,888
Savannah Cargo-Based Activity	17,906	9,518	27,425
Brunswick Cargo-Based Activity	1,197	690	1,886
Ports Investment	328	187	514
Private Facilities/Docks	2,111	951	3,063
Ports Users	127,060	209,245	336,305
Total Employment Impact	148,602	220,591	369,193

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity refers to impacts generated by the public facilities owned by the Georgia Ports Authority. Private facilities/docks refers to impacts generated by privately owned facilities/docks. Ports users are firms/enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

Table 6

**Economic Impact of Georgia's Deepwater Ports  
on Tax Collections in Georgia, Fiscal Year 2014  
(millions of 2014 dollars)**

	Federal Taxes	State Taxes	Local Taxes
Ports Industry	433.4	81.7	84.7
Savannah Cargo-Based Activity	363.3	68.5	71.0
Brunswick Cargo-Based Activity	25.2	4.8	5.1
Ports Investment	7.4	1.3	1.2
Private Facilities/Docks	37.5	7.1	7.4
Ports Users	4,099.0	1,220.5	927.5
Total	4,532.4	1,311.2	1,012.2

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity refer to impacts generated by the public facilities owned by the Georgia Ports Authority. Private facilities/docks refers to impacts generated by privately owned facilities/docks. Ports users are firms/enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

**Table 7**

**Overall Multipliers for  
Output, Employment, Income, and State GDP,  
Fiscal Year 2014**

	Multiplier Values			
	Output	Employment	Income	State GDP
Ports Industry	1.535	1.527	1.489	1.532
Savannah Cargo-Based Activity	1.534	1.532	1.491	1.530
Brunswick Cargo-Based Activity	1.530	1.576	1.519	1.531
Ports Investment	1.649	1.567	1.471	1.571
Private Facilities/Docks	1.534	1.451	1.459	1.541
Ports Users	1.665	2.647	2.237	2.138
Total	1.658	2.484	2.161	2.088

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity refers to impacts generated by the public facilities owned by the Georgia Ports Authority. Private facilities/docks refers to impacts generated by privately owned facilities/docks. Ports users are firms/enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

**Table 8**

**Distribution of Total Economic Impacts of Cargo-Based Activity  
at the Ports of Savannah and Brunswick by Mode of Cargo,  
Fiscal Year 2014**

Mode/Impact	Output/Revenue (Mil. \$2014)	State GDP (Mil. \$2014)	Income (Mil. \$2014)	Employment (jobs)
Containerized	3,312	1,626	1,145	26,468
Breakbulk	97	48	36	916
Auto/Vehicle	196	98	64	1,477
Dry Bulk	43	20	13	280
Liquid Bulk	26	12	8	170
Total	3,675	1,804	1,266	29,311
Percent of Total				
Containerized	90.1	90.1	90.4	90.3
Breakbulk	2.6	2.7	2.9	3.1
Auto/Vehicle	5.3	5.4	5.0	5.0
Dry Bulk	1.2	1.1	1.0	1.0
Liquid Bulk	0.7	0.7	0.6	0.6
Total	100.0	100.0	100.0	100.0

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

Table 9

**Ports Industry Employment Impact by Occupation in Georgia,  
Fiscal Year 2014**

Occupational Category	Port Industry Impact (full- and part-time jobs)
Executive, administrative and managerial	2,712
Managerial and administrative	2,038
Management support	674
Professional specialty	998
Engineers	152
Architects and surveyors	9
Life scientists	10
Computer, math, and operations research	169
Physical scientists	25
Religious workers	55
Social scientists	11
Social and recreation workers	39
Lawyers and judicial workers	28
Teachers, librarians, and counselors	166
Health diagnosing	16
Health assessment and treatment	83
Writers, artists, and entertainers	127
All other professionals	108
Technicians and related support	306
Health	116
Engineering	102
Other technicians	89
Marketing and sales	2,526
Cashiers	574
Counter and rental clerks	120
Insurance sales agents	43
Marketing and sales worker supervisors	309
Models, demonstrators, product promoters	28
Parts salespersons	27
Real estate agents and brokers	15
Retail salespersons	628
Sales engineers	3
Securities, commodities, financial service sales	21
Travel agents	7
All other sales and related	752
Administrative support	5,412
Adjusters, investigators, and collectors	258
Communications equipment operators	54
Computer operators	25
Information clerks	212
Mail clerks and messengers	151
Postal clerks and mail carriers	38
Material recording, scheduling, dispatch, distributing	1,393
Records processing	979
Secretaries, stenographers, typists	531
Other administrative support	1,771

(continued)



Table 9 (continued)

**Ports Industry Employment Impact by Occupation in Georgia,  
Fiscal Year 2014**

Occupational Category	Port Industry Impact (full- and part-time jobs)
Service	2,544
Cleaning and building service	359
Food preparation and service	1,496
Health service	118
Personal service	79
Private household workers	40
Protective service	437
 Agriculture, forestry, and fishing	 139
Production, craft, and repair	3,863
Blue collar worker supervisors	879
Construction trades	379
Extractive and related workers	26
Mechanics, installers, and repairers	1,563
Machinery mechanics, installers, and repairers	141
Vehicle and mobile equipment mechanics	649
Other mechanics, installers, and repairers	225
 Precision production	 283
 Plant and systems	 26
Operators, fabricators, and laborers	14,080
Numerical control machine tool operators	3
Combination machine tool setters, etc.	3
Machine setters, operators, and tenders	306
Hand workers, including assemblers	329
Transportation and material moving machine/vehicle	10,599
Helpers, laborers, and material movers, hand	2,838
 Total all occupations	 32,888

Note: The port industry refers to firms/enterprises located in Georgia because of the ports' existence.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), 2015.

Table 10

Ports Users Employment Impact by Industry in Georgia,  
Fiscal Year 2014

Impacted Industry	Employment (full- and part-time jobs)
Agriculture	27,011
Mining	1,640
Construction	9,219
Manufacturing	102,260
TIPU	26,444
Trade	39,371
Services	128,990
Government	1,370
Total	336,305

Note: Ports users are firms/enterprises that utilize ports facilities (primarily importers and exporters).

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), 2015.

Table 11

**Economic Impact of Georgia's Deepwater Ports  
On County-Level Employment in Georgia, Fiscal Year 2014  
(full- and part-time jobs)**

<u>County</u>	<u>Employment</u>	<u>County</u>	<u>Employment</u>
Appling	568	Dade	274
Atkinson	197	Dawson	660
Bacon	394	Decatur	700
Baker	75	DeKalb	24,370
Baldwin	991	Dodge	430
Banks	497	Dooly	310
Barrow	1,871	Dougherty	3,221
Bartow	3,781	Douglas	3,056
Ben Hill	551	Early	636
Berrien	393	Echols	96
Bibb	7,210	Effingham	2,017
Bleckley	232	Elbert	815
Brantley	465	Emanuel	610
Brooks	264	Evans	454
Bryan	1,653	Fannin	483
Bulloch	3,592	Fayette	3,655
Burke	598	Floyd	3,108
Butts	552	Forsyth	4,444
Calhoun	106	Franklin	716
Camden	1,058	Fulton	58,646
Candler	267	Gilmer	715
Carroll	3,275	Glascok	62
Catoosa	1,395	Glynn	4,365
Charlton	178	Gordon	2,244
Chatham	32,286	Grady	603
Chattahoochee	802	Greene	470
Chattooga	625	Gwinnett	25,144
Cherokee	4,536	Habersham	1,204
Clarke	4,342	Hall	6,687
Clay	70	Hancock	136
Clayton	12,976	Haralson	600
Clinch	221	Harris	666
Cobb	27,848	Hart	621
Coffee	1,342	Heard	236
Colquitt	1,246	Henry	4,465
Columbia	2,551	Houston	3,843
Cook	341	Irwin	204
Coweta	3,155	Jackson	1,852
Crawford	280	Jasper	244
Crisp	637	Jeff Davis	2,283

(continued)

Table 11 (continued)

**Economic Impact of Georgia's Deepwater Ports  
On County-Level Employment in Georgia, Fiscal Year 2014  
(full- and part-time jobs)**

County	Employment	County	Employment
Jefferson	586	Richmond	8,038
Jenkins	128	Rockdale	2,698
Johnson	152	Schley	120
Jones	391	Screven	354
Lamar	385	Seminole	201
Lanier	153	Spalding	1,753
Laurens	1,431	Stephens	678
Lee	522	Stewart	95
Liberty	3,652	Sumter	1,564
Lincoln	139	Talbot	111
Long	95	Taliaferro	33
Lowndes	3,367	Tattnall	836
Lumpkin	628	Taylor	193
McDuffie	615	Telfair	246
McIntosh	170	Terrell	292
Macon	296	Thomas	1,501
Madison	439	Tift	1,481
Marion	179	Toombs	1,003
Meriwether	429	Towns	270
Miller	177	Treutlen	99
Mitchell	710	Troup	3,750
Monroe	503	Turner	218
Montgomery	178	Twiggs	153
Morgan	660	Union	563
Murray	937	Upson	583
Muscogee	6,449	Walker	1,246
Newton	1,693	Walton	1,405
Oconee	728	Ware	4,122
Oglethorpe	239	Warren	160
Paulding	2,108	Washington	3,134
Peach	742	Wayne	2,830
Pickens	628	Webster	51
Pierce	402	Wheeler	98
Pike	330	White	662
Polk	1,073	Whitfield	6,055
Pulaski	197	Wilcox	147
Putnam	508	Wilkes	275
Quitman	19	Wilkinson	407
Rabun	398	Worth	362
Randolph	195	<b>Total for Georgia</b>	<b>369,193</b>

Note: The allocation of port users' jobs to the counties is partially based on the location of the company on the bill of lading and is not necessarily the origin/destination of the cargo.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2015.

**Table A-1**

**The Economic Impact of Port Industry Activity  
at the Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	4,031.3	14.0	386.0	668.1
Agri. Serv., Forestry, & Fish	1,581.7	28.0	707.7	874.0
Mining	5,819.6	52.0	835.3	2,009.6
Construction	46,995.1	128.0	6,466.9	14,498.9
Manufacturing	242,134.0	676.0	38,193.9	70,318.5
Trans. & Public Utilities	2,540,186.4	20,302.0	905,031.8	1,259,818.6
Wholesale	93,460.9	486.0	38,006.2	39,709.7
Retail Trade	204,260.9	3,283.0	75,102.3	118,897.3
Finance, Ins., & Real Estate	226,495.9	1,174.0	72,254.5	144,469.9
Services	279,682.9	2,977.0	119,723.0	136,182.0
Government	30,049.5	187.0	9,638.1	17,005.8
<b>Total</b>	<b>3,674,698.4</b>	<b>29,311.0</b>	<b>1,266,346.4</b>	<b>1,804,452.4</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	2,395,502.6	19,103.0	847,385.6	1,178,605.7
2. Indirect & Induced Impacts	1,279,195.7	10,208.0	418,961.8	625,846.7
3. Total Economic Impact	3,674,698.4	29,311.0	1,266,346.4	1,804,452.4
4. Multipliers (e.g., 3/1)	1.534	1.534	1.494	1.531
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				1,119,315.1
2. Taxes, total				282,804.0
a. Local Taxes				47,121.1
b. State Taxes				42,312.0
c. Federal Taxes				193,370.9
3. Profits, dividends, rent and other				402,333.7
4. Total Gross State Product (1+2+3)				1,804,452.4
<b>Tax Accounts</b>				
Total				537,938.6
Local				76,029.1
State				73,357.3
Federal				388,551.9
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				12.2
Income				528,215.5
State Taxes				30,598.6
Local Taxes				31,713.1
Gross State Product				752,669.0
Initial Expenditure in Dollars				2,397,404,842.3

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

**Table A-2**

**The Economic Impact of Port Industry Activity  
at the Georgia Ports Authority's Facilities in Savannah  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	3,751.8	13.0	359.8	622.4
Agri. Serv., Forestry, & Fish	1,502.6	27.0	672.4	828.0
Mining	5,259.3	48.0	755.8	1,817.0
Construction	42,559.2	116.0	5,849.9	13,134.8
Manufacturing	222,369.5	627.0	35,397.6	64,893.9
Trans. & Public Utilities	2,377,569.2	19,099.0	851,520.6	1,179,916.6
Wholesale	87,348.9	454.0	35,520.9	37,112.8
Retail Trade	191,033.1	3,070.0	70,239.9	111,204.0
Finance, Ins., & Real Estate	209,626.6	1,092.0	67,399.8	133,507.2
Services	258,361.2	2,734.0	109,777.9	125,652.0
Government	21,727.0	144.0	6,827.6	11,563.1
<b>Total</b>	<b>3,421,108.7</b>	<b>27,425.0</b>	<b>1,184,322.1</b>	<b>1,680,251.8</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	2,229,583.1	17,906.0	793,877.1	1,097,558.9
2. Indirect & Induced Impacts	1,191,525.6	9,518.0	390,445.0	582,692.9
3. Total Economic Impact	3,421,108.7	27,425.0	1,184,322.1	1,680,251.8
4. Multipliers (e.g., 3/1)	1.534	1.532	1.492	1.531
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				1,047,109.7
2. Taxes, total				264,190.6
a. Local Taxes				43,923.7
b. State Taxes				39,479.5
c. Federal Taxes				180,787.2
3. Profits, dividends, rent and other				368,951.6
4. Total Gross State Product (1+2+3)				1,680,251.8
<b>Tax Accounts</b>				
Total				502,799.4
Local				70,959.3
State				68,514.1
Federal				363,325.9
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				12.3
Income				530,819.3
State Taxes				30,708.4
Local Taxes				31,804.3
Gross State Product				753,097.6
Initial Expenditure in Dollars				2,231,120,875.4

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-3

**The Economic Impact of Port Industry Activity  
at the Georgia Ports Authority's Facilities in Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	279.5	1.0	26.3	45.7
Agri. Serv., Forestry, & Fish	79.0	1.0	35.3	46.0
Mining	560.3	4.0	79.6	192.7
Construction	4,435.9	12.0	617.0	1,364.1
Manufacturing	19,764.5	49.0	2,796.3	5,424.6
Trans. & Public Utilities	162,617.2	1,203.0	53,511.2	79,901.9
Wholesale	6,112.0	32.0	2,485.3	2,596.9
Retail Trade	13,227.9	213.0	4,862.3	7,693.3
Finance, Ins., & Real Estate	16,869.3	82.0	4,854.7	10,962.7
Services	21,321.7	243.0	9,945.1	10,530.0
Government	8,322.5	43.0	2,810.5	5,442.7
<b>Total</b>	<b>253,589.7</b>	<b>1,886.0</b>	<b>82,024.3</b>	<b>124,200.6</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	165,919.5	1,197.0	53,507.5	81,046.8
2. Indirect & Induced Impacts	87,670.1	690.0	28,516.9	43,153.9
3. Total Economic Impact	253,589.7	1,886.0	82,024.3	124,200.6
4. Multipliers (e.g., 3/1)	1.528	1.576	1.533	1.532
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				72,205.4
2. Taxes, Total				18,613.4
a. Local Taxes				3,197.5
b. State Taxes				2,832.4
c. Federal Taxes				12,583.6
3. Profits, dividends, rent and other				33,382.1
4. Total Gross State Product (1+2+3)				124,200.6
<b>Tax Accounts</b>				
Total				35,139.2
Local				5,069.9
State				4,843.2
Federal				25,226.0
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				11.3
Income				493,278.7
State Taxes				29,125.9
Local Taxes				30,489.1
Gross State Product				746,918.9
Initial Expenditure in Dollars				1666,283,966.9

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-4

**The Economic Impact of Auto/Vehicle Cargo at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	218.6	1.0	20.7	35.8
Agri. Serv., Forestry, & Fish	62.5	1.0	27.9	36.5
Mining	227.7	2.0	33.9	79.9
Construction	3,667.0	10.0	510.3	1,127.3
Manufacturing	11,452.9	36.0	2,007.9	3,512.2
Trans. & Public Utilities	129,141.6	958.0	41,861.4	63,274.2
Wholesale	4,077.3	21.0	1,657.9	1,732.4
Retail Trade	10,227.5	164.0	3,759.7	5,948.7
Finance, Ins., & Real Estate	13,712.1	66.0	3,819.1	8,963.8
Services	16,149.8	178.0	7,498.0	7,918.1
Government	7,482.0	39.0	2,531.7	4,918.7
<b>Total</b>	<b>196,418.9</b>	<b>1,477.0</b>	<b>63,729.0</b>	<b>97,547.2</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	127,854.3	936.0	41,299.3	63,584.8
2. Indirect & Induced Impacts	68,564.5	541.0	22,429.6	33,962.6
3. Total Economic Impact	196,418.9	1,477.0	63,729.0	97,547.2
4. Multipliers (e.g., 3/1)	1.536	1.578	1.543	1.534
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				55,980.7
2. Taxes, total				14,581.0
a. Local Taxes				2,517.7
b. State Taxes				2,219.2
c. Federal Taxes				9,844.1
3. Profits, dividends, rent and other				26,985.8
4. Total Gross State Product (1+2+3)				97,547.2
<b>Tax Accounts</b>				
Total				27,420.7
Local				3,972.4
State				3,781.6
Federal				19,666.7
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				11.5
Income				497,330.3
State Taxes				29,510.6
Local Taxes				31,000.0
Gross State Product				761,242.3
Initial Expenditure in Dollars				128,142,175.6

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.



Table A-5

**The Economic Impact of Breakbulk Cargo at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	115.8	0.0	11.0	19.2
Agri. Serv., Forestry, & Fish	44.6	1.0	20.3	24.9
Mining	222.9	2.0	31.4	76.4
Construction	1,229.8	3.0	168.5	379.6
Manufacturing	7,975.6	19.0	1,111.2	2,180.6
Trans. & Public Utilities	53,673.2	454.0	19,428.8	26,588.8
Wholesale	2,515.9	14.0	1,023.1	1,069.0
Retail Trade	5,817.7	93.0	2,139.5	3,386.4
Finance, Ins., & Real Estate	6,365.9	33.0	2,005.0	4,070.5
Services	17,790.3	286.0	9,939.5	9,591.0
Government	1,537.8	10.0	510.2	958.3
<b>Total</b>	<b>97,289.6</b>	<b>916.0</b>	<b>36,388.5</b>	<b>48,344.7</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	63,348.4	641.0	25,248.0	31,636.0
2. Indirect & Induced Impacts	33,941.2	275.0	11,140.5	16,708.7
3. Total Economic Impact	97,289.6	916.0	36,388.5	48,344.7
4. Multipliers (e.g., 3/1)	1.536	1.429	1.441	1.528
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				32,355.5
2. Taxes, total				7,934.7
a. Local Taxes				1,340.1
b. State Taxes				1,203.8
c. Federal Taxes				5,390.6
3. Profits, dividends, rent and other				8,054.5
4. Total Gross State Product (1+2+3)				48,344.7
<b>Tax Accounts</b>				
Total				15,265.9
Local				2,170.6
State				2,096.0
Federal				10,999.2
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				14.4
Income				573,807.8
State Taxes				33,051.7
Local Taxes				34,227.9
Gross State Product				762,345.0
Initial Expenditure in Dollars				63,415,777.0
Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.				

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-6

**The Economic Impact of Containerized Cargo at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	3,624.5	13.0	347.7	601.3
Agri. Serv., Forestry, & Fish	1,457.1	26.0	651.7	802.4
Mining	4,944.7	45.0	711.7	1,709.4
Construction	41,045.6	112.0	5,641.3	12,668.1
Manufacturing	212,267.1	605.0	34,104.8	62,244.7
Trans. & Public Utilities	2,315,392.0	18,604.0	829,349.8	1,148,731.3
Wholesale	84,379.2	438.0	34,313.2	35,851.1
Retail Trade	184,699.5	2,969.0	67,911.0	107,518.2
Finance, Ins., & Real Estate	202,653.0	1,056.0	65,208.4	129,048.0
Services	241,173.0	2,467.0	100,385.3	116,478.2
Government	19,939.7	133.0	6,233.8	10,445.1
<b>Total</b>	<b>3,311,575.5</b>	<b>26,468.0</b>	<b>1,144,858.7</b>	<b>1,626,097.9</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	2,157,823.3	17,252.0	766,732.3	1,061,931.2
2. Indirect & Induced Impacts	1,153,752.2	9,216.0	378,126.4	564,166.7
3. Total Economic Impact	3,311,575.5	26,468.0	1,144,858.7	1,626,097.9
4. Multipliers (e.g., 3/1)	1.535	1.534	1.493	1.531
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				1,012,024.8
2. Taxes, total				255,580.6
a. Local Taxes				42,472.6
b. State Taxes				38,174.2
c. Federal Taxes				174,933.9
3. Profits, dividends, rent and other				358,492.4
4. Total Gross State Product (1+2+3)				1,626,097.9
<b>Tax Accounts</b>				
Total				486,238.6
Local				68,607.6
State				66,241.0
Federal				351,389.9
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				12.3
Income				530,208.3
State Taxes				30,677.6
Local Taxes				31,773.6
Gross State Product				753,080.3
Initial Expenditure in Dollars				2,159,262,248.0

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-7

**The Economic Impact of Dry Bulk Cargo at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	45.1	0.0	4.2	7.4
Agri. Serv., Forestry, & Fish	11.1	0.0	4.9	6.4
Mining	283.2	2.0	38.9	96.0
Construction	657.0	2.0	91.7	202.1
Manufacturing	6,896.2	10.0	629.6	1,561.5
Trans. & Public Utilities	25,451.6	176.0	8,770.0	12,866.7
Wholesale	1,583.0	8.0	643.8	672.6
Retail Trade	2,180.5	35.0	801.2	1,267.3
Finance, Ins., & Real Estate	2,364.2	12.0	759.9	1,501.6
Services	2,912.3	29.0	1,225.0	1,400.5
Government	863.8	4.0	289.3	552.8
<b>Total</b>	<b>43,248.3</b>	<b>280.0</b>	<b>13,258.4</b>	<b>20,135.2</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	28,977.2	172.0	8,744.4	13,287.5
2. Indirect & Induced Impacts	14,271.1	110.0	4,514.1	6,847.6
3. Total Economic Impact	43,248.3	280.0	13,258.4	20,135.2
4. Multipliers (e.g., 3/1)	1.492	1.628	1.516	1.515
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				11,707.9
2. Taxes, total				2,972.2
a. Local Taxes				516.3
b. State Taxes				459.8
c. Federal Taxes				1,996.1
3. Profits, dividends, rent and other				5,455.3
4. Total Gross State Product (1+2+3)				20,135.2
<b>Tax Accounts</b>				
Total				5,643.4
Local				819.0
State				784.8
Federal				4,039.6
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				9.6
Income				456,424.8
State Taxes				27,016.4
Local Taxes				28,192.7
Gross State Product				693,160.6
Initial Expenditure in Dollars				29,048,422.3

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-8

**The Economic Impact of Liquid Bulk Cargo at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	27.2	0.0	2.5	4.4
Agri. Serv., Forestry, & Fish	6.4	0.0	2.9	3.8
Mining	141.1	1.0	19.4	47.9
Construction	395.7	1.0	55.1	121.8
Manufacturing	3,542.1	6.0	340.3	819.5
Trans. & Public Utilities	16,528.0	110.0	5,621.8	8,357.5
Wholesale	905.5	5.0	368.2	384.8
Retail Trade	1,335.8	22.0	490.9	776.7
Finance, Ins., & Real Estate	1,400.7	7.0	462.1	886.0
Services	1,657.5	17.0	675.3	794.1
Government	226.3	1.0	73.1	130.8
<b>Total</b>	<b>26,166.1</b>	<b>170.0</b>	<b>8,111.9</b>	<b>12,327.4</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	17,499.5	102.0	5,360.6	8,166.2
2. Indirect & Induced Impacts	8,666.7	66.0	2,751.3	4,161.2
3. Total Economic Impact	26,166.1	170.0	8,111.9	12,327.4
4. Multipliers (e.g., 3/1)	1.495	1.667	1.513	1.510
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				7,246.1
2. Taxes, total				1,735.6
a. Local Taxes				274.5
b. State Taxes				255.0
c. Federal Taxes				1,206.2
3. Profits, dividends, rent and other				3,345.7
4. Total Gross State Product (1+2+3)				12,327.4
<b>Tax Accounts</b>				
Total				3,370.0
Local				459.6
State				453.9
Federal				2,456.4
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				9.7
Income				462,579.7
State Taxes				25,885.0
Local Taxes				26,209.8
Gross State Product				702,966.5
Initial Expenditure in Dollars				17,536,219.5

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-9

**The Economic Impact of Port Industry Activity at  
Private Facilities/Docks in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	397.8	1.0	38.1	65.6
Agri. Serv., Forestry, & Fish	144.7	2.0	65.0	80.6
Mining	985.9	9.0	137.6	336.7
Construction	4,369.8	13.0	600.6	1,348.6
Manufacturing	31,570.7	69.0	4,019.1	8,262.5
Trans. & Public Utilities	192,395.7	1,584.0	68,714.7	94,893.3
Wholesale	9,426.7	49.0	3,833.5	4,005.3
Retail Trade	19,903.8	320.0	7,319.1	11,583.8
Finance, Ins., & Real Estate	21,745.8	112.0	6,877.9	13,890.3
Services	55,650.6	873.0	30,503.8	29,764.2
Government	5,390.4	30.0	1,789.0	3,361.8
<b>Total</b>	<b>341,981.8</b>	<b>3,063.0</b>	<b>123,898.7</b>	<b>167,592.7</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	223,473.7	2,111.0	85,201.1	109,487.2
2. Indirect & Induced Impacts	118,508.1	951.0	38,697.4	58,105.5
3. Total Economic Impact	341,981.8	3,918.0	123,894.5	167,592.7
4. Multipliers (e.g., 3/1)	1.530	1.856	1.454	1.531
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				110,111.6
2. Taxes, total				27,070.9
a. Local Taxes				4,555.5
b. State Taxes				4,099.9
c. Federal Taxes				18,415.5
3. Profits, dividends, rent and other				30,410.3
4. Total Gross State Product (1+2+3)				167,592.7
<b>Tax Accounts</b>				
Total				52,033.1
Local				7,384.3
State				7,137.4
Federal				37,511.9
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				13.7
Income				553,724.8
State Taxes				31,898.2
Local Taxes				33,001.9
Gross State Product				7149,001.2
Initial Expenditure in Dollars				223,754,930.9

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the MARAD Port Economic Impact Kit for Georgia, 2015.

Table A-10

**The Economic Impact of Port Investment (Capital Expenditures) at the  
Georgia Ports Authority's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GSP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	85.6	0.0	8.8	15.5
Agri. Serv., Forestry, & Fish	109.2	1.4	45.1	62.9
Mining	1,510.4	7.9	513.9	811.9
Construction	21,720.6	245.5	12,395.5	15,213.1
Manufacturing	15,190.7	73.4	3,998.1	5,666.2
Trans. & Public Utilities	3,896.5	18.7	1,025.6	1,708.6
Wholesale	2,830.2	14.4	1,150.9	1,202.5
Retail Trade	4,188.7	67.0	1,545.9	2,457.4
Finance, Ins., & Real Estate	4,216.7	21.6	1,310.3	2,709.2
Services	6,517.2	61.2	2,888.1	3,039.5
Government	309.9	2.2	93.4	144.5
<b>Total</b>	<b>60,575.6</b>	<b>514.0</b>	<b>24,975.6</b>	<b>33,031.3</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	36,538.5	327.6	17,092.6	21,477.1
2. Indirect & Induced Impacts	24,037.1	186.5	7,883.1	11,554.1
3. Total Economic Impact	60,575.6	514.0	24,975.6	33,031.3
4. Multipliers (e.g., 3/1)	1.658	1.570	1.461	1.538
<b>Composition of Gross State Product</b>				
1. Wages (net of taxes)				22,772.7
2. Taxes, total				4,880.7
a. Local Taxes				664.7
b. State Taxes				677.5
c. Federal Taxes				3,538.5
3. Profits, dividends, rent and other				5,377.9
4. Total Gross State Product (1+2+3)				33,031.3
<b>Tax Accounts</b>				
Total				9,912.6
Local				1,234.8
State				1,289.8
Federal				7,388.0
<b>Effects Per Million Dollars of Initial Expenditures</b>				
Employment (jobs)				11.9
Income				578,273.0
State Taxes				29,863.0
Local Taxes				28,591.0
Gross State Product				764,789.0
Initial Expenditure in Dollars				43,190,000.0

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), using the MARAD Port Economic Impact Kit for Georgia, 2015.

**Table A-11**

**The Economic Impact of Port-Related Activity  
on Georgia in Fiscal Year 2014  
(thousands of 2014 dollars)**

	Model Output (000 of 2014\$)	Model Employment (jobs)	Model Income (000 of 2014\$)	Model GDP (000 of 2014\$)
<b>Total Economic Impact</b>				
Agriculture	4,295,363,747	27,011	1,752,417,257	1,855,571,295
Mining	421,845,008	1,640	116,232,852	259,333,165
Construction	1,548,821,062	9,219	504,882,654	518,432,085
Manufacturing	46,924,666,040	102,260	6,911,920,620	12,889,802,090
Trans, Info, Utilities	4,,422,504,705	26,444	1,412,834,266	1,965,298,246
Retail & Wholesale Trade	5,988,385,675	39,370	2,141,429,235	3,935,134,853
Services	16,228,277,449	128,991	6,023,831,672	9,670,649,145
Government	156,730,311	1,370	101,096,389	92,081,721
<b>Total</b>	<b>79,986,593,997</b>	<b>336,305</b>	<b>18,964,644,945</b>	<b>31,186,302,600</b>
<b>Distribution of Economic Impact</b>				
1. Direct Impact	48,044,144,605	127,060	8,479,800,520	14,584,025,776
2. Indirect & Induced Impacts	31,942,449,393	209,245	10,484,844,424	16,602,276,824
3. Total Economic Impact	79,986,593,998	336,305	18,964,644,944	31,186,302,600
4. Multipliers (e.g., 3/1)	1.665	2.647	2.236	2.138

Note: Employment includes full- and part-time jobs. Detail may not sum to totals due to rounding.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), using the 2010 IMPLAN State Package for Georgia, 2015.

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U.S. Bureau of Labor Statistics: [www.bls.gov](http://www.bls.gov)

U.S. Bureau of Transportation Statistics: [www.rita.dot.gov/bts](http://www.rita.dot.gov/bts)

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U.S. Department of Labor: [www.dol.gov](http://www.dol.gov)