
**The Economic Impact of
Georgia's Deepwater Ports
On Georgia's Economy in FY 2017**

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Jeffrey M. Humphreys, Director
Selig Center for Economic Growth
Terry College of Business
The University of Georgia

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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 2017. The ensuing sections contain the comprehensive technical report.

The statewide economic impact of Georgia's deepwater ports in fiscal year 2017 includes:

- **\$106 billion in sales (11 percent of Georgia's total sales);**
- **\$44 billion in state GDP (8 percent of Georgia's total GDP);**
- **\$25 billion in income (6 percent of Georgia's total personal income);**
- **439,220 full- and part-time jobs (9 percent of Georgia's total employment);**
- **\$5.9 billion in federal taxes;**
- **\$1.4 billion in state taxes; and**
- **\$1.5 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 \$106 billion, which is almost 11 percent of Georgia's output in FY 2017. Out of the total, \$63.4 billion represents initial spending, or direct economic impact; \$43 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total output impact (\$106 billion) by initial spending (\$63.4 billion) yields an average multiplier value of 1.68. On average, therefore, every dollar initially spent by the ports industry and ports users generates an additional 68 cents for the state's economy.

State GDP (Value Added) Impacts

Measured in terms of GDP or value added, Georgia's deepwater ports contribute \$44 billion to the state's economy in fiscal year 2017, which is over 8 percent of Georgia's total GDP. Out of the total, \$20.8 billion represents the direct effects of initial spending, or the direct economic impact; \$22.9 billion is indirect and induced spending, or the re-spending (multiplier) impact.

Income Impacts

Measured in terms of income, Georgia's deepwater ports contributed \$25 billion to the state's economy in fiscal year 2017, which is almost 6 percent of Georgia's total personal income. Of the total, \$11.3 billion represents the

direct effects of initial spending, or the direct economic impact; \$13.4 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 439,220 full- and part-time jobs, which is over 9 percent of Georgia's total employment (as defined by a survey of households). This means that one job out of every eleven is in some way dependent on the ports. Of the FY 2017 total employment impact, 180,189 jobs represent the direct effects of initial spending, or the direct economic impact; 259,031 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 2017 is \$1.4 billion.

Local: The total economic impact of Georgia's deepwater ports on tax collections by local governments in fiscal year 2017 is \$1.5 billion.

Federal: The total economic impact of Georgia's deepwater ports on tax collections by the federal government in fiscal year 2017 is \$5.9 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 2017.

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 (2017) 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 2017 includes:

- \$106 billion in sales (11 percent of Georgia's total sales);
- \$44 billion in state GDP (8 percent of Georgia's total GDP);
- \$25. billion in income (6 percent of Georgia's total personal income);
- 439,220 full- and part-time jobs (9 percent of Georgia's total employment);
- \$3.9 billion in federal taxes;
- \$1.4 billion in state taxes; and
- \$1.5 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 \$106 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 \$106 billion output impact accounts for almost 11 percent of Georgia's total output in FY 2017. Out of the \$106 billion, \$5 billion (5 percent) represents the results from the ports industry and \$101 billion (95 percent) represents the results from ports users.

Of the FY 2017 total output impact, \$63 billion represents initial spending, or direct economic impact; and \$43 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total output impact (\$106 billion) by initial spending (\$63 billion) yields an average multiplier value of 1.68. On average, therefore, every dollar initially spent by either the ports industry and ports users generates an additional 68 cents for the economy.

Expressed in other dimensions, the ports industry and port users together support \$44 billion in state GDP and \$25 billion in income, which account for 8 percent and 6 percent of Georgia's GDP and total personal income, respectively. The total economic impact on employment is 439,220 full- and part-time jobs. The combined impact of the ports industry and ports users on state tax collections is \$1.4 billion. The combined impact of the ports industry and ports users

on local tax collections is \$1.5 billion. The combined impact on federal tax collections is \$5.9 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 92 percent of the reported economic impacts. Auto/vehicle cargo accounts for 4 percent of the reported impacts, and breakbulk cargo accounts for 2 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 2017 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 2017 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 \$66 billion in Georgia in fiscal year 2017, or about 6.5 percent of Georgia’s total output that year. Manufacturers were estimated to account for about 82 percent of port-related sales, while wholesale/distribution/warehousing/storage activities accounted for about 12 percent of port-related sales, and agriculture, forestry, and mining accounted for the remaining 6 percent.

The IMPLAN Online modeling system (2016 State Package for Georgia) was used to estimate the indirect and induced economic impact of ports users’ direct expenditures in fiscal year 2017. A detailed discussion of the IMPLAN modeling system, including its structure, methods, and use, can be found at 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 the Appendix.

■ 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 \$106 billion, which is almost 11 percent of Georgia’s output in FY 2017.

Out of the total, \$5 billion (5 percent) represents the results from the ports industry, of which the GPA’s operations at the Port of Savannah contribute 88 percent. Ports users’ total output impact, however, is twenty times greater than that of the ports industry—\$101 billion. Indeed, ports users account for 95 percent of the total output impact of Georgia’s deepwater ports.

Of the FY 2017 total output impact, \$63 billion represents initial spending, or direct economic impact; \$43 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total output impact (\$106 billion) by initial spending (\$63 billion) yields an average multiplier value of 1.68. On average, therefore, every dollar initially spent by either the ports industry or ports users generates an additional 68 cents for the state’s economy.

■ State GDP (Value Added) Impacts ■

Measured in terms of GDP or value added, Georgia's deepwater ports contributed \$44 billion to the state's economy in FY 2017, which is 8 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 \$41 billion GDP impact attributed to ports users is almost seventeen 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 2017 total GDP impact, \$21 billion represents the direct effects of initial spending, or the direct economic impact; \$23 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total GDP impact (\$44 billion) by the direct GDP impact (\$21 billion) yields an average multiplier value of 2.10. On average, therefore, every dollar of direct GDP produced by the ports industry and ports users yields an additional 110 cents for the state's economy.

■ Income Impacts ■

Measured in terms of income, Georgia's deepwater ports contributed \$25 billion to the state's economy in fiscal year 2017, which is 6 percent of Georgia's total personal income. Out of the total, \$2 billion (7 percent) represents the results from the ports industry. The GPA's operations at the Port of Savannah contribute 87 percent of this amount, but ports users' \$23 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 2017 total income impact, \$11 billion represents the direct effects of initial spending, or the direct economic impact; \$13 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total income impact (\$25 billion) by the direct income impact (\$11 billion) yields an average multiplier value of 2.19. On average, therefore, every dollar of direct income produced by the ports industry and ports users generates an additional 119 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 439,220 full- and part-time jobs, which equal 9 percent of Georgia's total employment—based on the household survey definition of employment.

This means that one job out of every eleven is in some way dependent on the ports. Out of the 439,220 jobs, 38,727 (9 percent) represent the results from the ports industry. The GPA's operations at the Port of Savannah contribute 87 percent of these 38,727 jobs, but ports users' 400,493-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 2017 total employment impact, 180,189 jobs represent the direct effects of initial spending, or the direct economic impact; 259,031 jobs constitute the indirect and induced effect of spending, or the re-spending (multiplier) impact. Dividing the FY 2017 total job impact (439,220 jobs) by the direct job impact (180,189 jobs) yields an average multiplier value of 2.44. On average, therefore, each job created directly by the ports industry and ports users yields an additional 1.4 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 2017 is \$1.4 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 2017 is \$1.5 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 2017 is \$5.9 billion.

Comparisons to Previous Estimates

In 2015, 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 2014 were published in *The Economic Impact of Georgia's Deepwater Ports: FY 2014* (2015). The methods used were very similar to those used in this study. The FY 2014 impacts of Georgia's deepwater ports were 369,193 full- and part-time jobs, \$84 billion in sales, \$33 billion in state GDP, and \$20 billion in income. The job impact therefore is 19 percent higher in FY2017 than in FY2014. Over that same period, the total number of jobs in Georgia increased by 8 percent. Thus, the employment impact of Georgia's deepwater ports rose faster than the overall number of jobs in Georgia, implying that Georgia's deepwater ports are increasingly important drivers of statewide employment growth. From FY 2014 through FY 2017, the additional 70,027 jobs supported by Georgia's deepwater ports account for 21 percent of statewide job growth, or one of every five net new jobs created.

In 2012, the economic impact estimates for FY 2011 were published in *The Economic Impact of Georgia's Deepwater Ports: 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 352,146 full- and part-time jobs, \$66.9 billion in sales, \$32.4 billion in state GDP, and \$18.5 billion in income.

In 2010, the FY 2009 impacts of Georgia's deepwater 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 again 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 retained 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 in FY 2003* (April 2004). The study found that the FY 2003 impact of Georgia's deepwater ports were \$35.4 billion in sales, \$17.1 billion in gross state product, \$10.8 billion in income, and 275,968 full- and part-time jobs.

In 1997, Booz-Allen & Hamilton, Inc. conducted a 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 other port economic impact studies.

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. However, it appears that they 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 higher than those produced by Booz-Allen & Hamilton.

Closing Comment

This 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 2017**

Cargo Type	Cargo Volume ¹			Percent of Total by Mode	
	Mode	Total	Savannah		Brunswick
Autos	Long Dist. Truck	10,707	10,707	0	2
	Short Dist. Truck	504,420	18,638	485,782	78
	Rail	131,755	10,310	121,445	20
	Total	646,882	39,655	607,227	100
Containerized	Long Dist. Truck	1,540,580	1,540,580	0	40
	Short Dist. Truck	1,657,030	1,657,030	0	43
	Rail	654,133	654,133	0	17
	Total	3,851,743	3,851,743	0	100
Breakbulk	Long Dist. Truck	319,004	298,392	20,612	25
	Short Dist. Truck	570,652	529,373	41,279	45
	Rail	374,045	332,821	41,224	30
	Total	1,263,701	1,160,586	103,115	100
Dry Bulk	Long Dist. Truck	575,323	0	575,323	51
	Short Dist. Truck	7,198	0	7,198	1
	Rail	539,670	0	539,670	48
	Total	1,122,191	0	1,122,191	100
Liquid Bulk	Long Dist. Truck	146,757	0	146,757	14
	Short Dist. Truck	173,738	170,743	2,995	17
	Rail	727,903	727,903	0	69
	Total	1,048,398	898,646	149,752	100

¹ 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, which are reported separately.

Source: Estimated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia (www.selig.uga.edu), 2018.

Table 2

**Cargo Volume for Private Facilities/Docks
in Savannah and Brunswick
(Import and Export) in FY 2017**

Cargo Type	Cargo Volume ¹
	Total
Breakbulk	2,769,081
Dry Bulk	1,213,377
Liquid Bulk	787,247
Total	4,769,705

¹Cargo 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), 2018.

Table 3

**Summary of the Economic Impact
of Georgia's Deepwater Ports on Georgia
in Fiscal Year 2017
(millions of 2017 dollars)**

	Total Economic Impact on:			
	Output	State GDP	Income	Employment (jobs)
Ports Industry	4,973	2,435	1,722	38,727
Savannah Cargo-Based Activity	4,358	2,133	1,506	33,849
Brunswick Cargo-Based Activity	265	129	86	1,945
Ports Investment	58	30	25	457
Private Facilities/Docks	292	143	105	2,476
Ports Users	101,417	41,333	22,999	400,493
Total Output/Revenue Impact	106,390	43,768	24,721	439,220

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and port investment 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), 2018.

Table 4

**Economic Impact of Georgia's Deepwater Ports
on Output (Revenue), Income, and State GDP
in Georgia, Fiscal Year 2017
(millions of 2017 dollars)**

	Direct Economic Impact on Output/Revenue	Indirect & Induced Economic Impact on Output/Revenue	Total Economic Impact on Output/Revenue
Ports Industry	3,236	1,737	4,973
Savannah Cargo-Based Activity	2,838	1,520	4,358
Brunswick Cargo-Based Activity	172	92	265
Ports Investment	35	24	58
Private Facilities/Docks	191	101	292
Ports Users	60,189	41,227	101,417
Total Output/Revenue Impact	63,425	42,964	106,390
	Direct Economic Impact on Income	Indirect & Induced Economic Impact on Income	Total Economic Impact on Income
Ports Industry	1,152	569	1,722
Savannah Cargo-Based Activity	1,007	498	1,506
Brunswick Cargo-Based Activity	56	30	86
Ports Investment	17	8	25
Private Facilities/Docks	72	33	105
Ports Users	10,147	12,852	22,999
Total Income Impact	11,299	13,421	24,721
	Direct Economic Impact on State GDP	Indirect & Induced Economic Impact on State GDP	Total Economic Impact on State GDP
Ports Industry	1,585	849	2,435
Savannah Cargo-Based Activity	1,390	743	2,133
Brunswick Cargo-Based Activity	83	45	129
Ports Investment	18	12	30
Private Facilities/Docks	94	49	143
Ports Users	19,235	22,099	41,333
Total State GDP	20,820	22,948	43,768

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and port investment 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), 2018.

Table 5

**Economic Impact of Georgia's Deepwater Ports
on Employment in Georgia, Fiscal Year 2017
(full- and part-time jobs)**

	Direct Economic Impact on Employment	Indirect & Induced Economic Impact on Employment	Total Economic Impact on Employment
Ports Industry	25,338	13,389	38,727
Savannah Cargo-Based Activity	22,123	11,725	33,849
Brunswick Cargo-Based Activity	1,242	703	1,945
Ports Investment	277	181	457
Private Facilities/Docks	1,696	780	2,476
Ports Users	154,851	245,642	400,493
Total Employment Impact	180,189	259,031	439,220

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and ports investment 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), 2018.

Table 6

**Economic Impact of Georgia's Deepwater Ports
on Tax Collections in Georgia, Fiscal Year 2017
(millions of 2017 dollars)**

	Federal Taxes	State Taxes	Local Taxes
Ports Industry	527.6	99.3	102.6
Savannah Cargo-Based Activity	462.2	87.1	90.1
Brunswick Cargo-Based Activity	26.5	5.0	5.2
Ports Investment	7.1	1.2	1.1
Private Facilities/Docks	31.8	6.0	6.2
Ports Users	5,416.4	1,333.4	1,368.8
Total	5,944.0	1,432.7	1,471.4

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and ports investment 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), 2018.

Table 7

**Overall Multipliers for
Output, Employment, Income, and State GDP,
Fiscal Year 2017**

	Multiplier Values			
	Output	Employment	Income	State GDP
Ports Industry	1.537	1.528	1.495	1.536
Savannah Cargo-Based Activity	1.536	1.530	1.496	1.535
Brunswick Cargo-Based Activity	1.541	1.566	1.536	1.554
Ports Investment	1.657	1.650	1.471	1.667
Private Facilities/Docks	1.529	1.460	1.458	1.521
Ports Users	1.685	2.586	2.267	2.149
Total	1.677	2.438	2.188	2.102

Note: The ports industry refers to firms/enterprises located in Georgia because of the ports' existence. Savannah and Brunswick cargo-based activity and ports investment 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), 2018.

Table 8

**Distribution of Total Economic Impacts of Cargo-Based Activity
at the Ports of Savannah and Brunswick by Mode of Cargo,
Fiscal Year 2017**

Mode/Impact	Output/Revenue (Mil. \$2017)	State GDP (Mil. \$2017)	Income (Mil. \$2017)	Employment (jobs)
Containerized	4,232	2,070	1,460	32,803
Breakbulk	100	50	38	909
Auto/Vehicle	204	101	66	1,494
Dry Bulk	48	22	15	338
Liquid Bulk	30	18	12	250
Total	4,614	2,261	1,592	35,794
Percent of Total				
Containerized	91.7	91.5	91.7	91.6
Breakbulk	2.2	2.2	2.4	2.5
Auto/Vehicle	4.4	4.5	4.2	4.2
Dry Bulk	1.0	1.0	0.9	0.9
Liquid Bulk	0.7	0.8	0.8	0.7
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), 2018.

Table 9

**Ports Industry Employment Impact by Occupation in Georgia,
Fiscal Year 2017**

Occupational Category	Port Industry Impact (full- and part-time jobs)
Executive, administrative and managerial	3,191
Managerial and administrative	2,399
Management support	792
Professional specialty	1,195
Engineers	194
Architects and surveyors	19
Life scientists	13
Computer, math, and operations research	200
Physical scientists	29
Religious workers	65
Social scientists	14
Social and recreation workers	45
Lawyers and judicial workers	33
Teachers, librarians, and counselors	194
Health diagnosing	18
Health assessment and treatment	98
Writers, artists, and entertainers	146
All other professionals	127
Technicians and related support	375
Health	135
Engineering	137
Other technicians	103
Marketing and sales	2,929
Cashiers	673
Counter and rental clerks	139
Insurance sales agents	50
Marketing and sales worker supervisors	360
Models, demonstrators, product promoters	27
Parts salespersons	32
Real estate agents and brokers	17
Retail salespersons	738
Sales engineers	5
Securities, commodities, financial service sales	25
Travel agents	8
All other sales and related	856
Administrative support	6,360
Adjusters, investigators, and collectors	303
Communications equipment operators	59
Computer operators	29
Information clerks	246
Mail clerks and messengers	182
Postal clerks and mail carriers	44
Material recording, scheduling, dispatch, distributing	1,641
Records processing	1,157
Secretaries, stenographers, typists	527
Other administrative support	2,074

(continued)

Table 9 (continued)

**Ports Industry Employment Impact by Occupation in Georgia,
Fiscal Year 2017**

Occupational Category	Port Industry Impact (full- and part-time jobs)
Service	2,881
Cleaning and building service	417
Food preparation and service	1,757
Health service	138
Personal service	93
Private household workers	46
Protective service	417
 Agriculture, forestry, and fishing	 160
Production, craft, and repair	4,472
Blue collar worker supervisors	1,027
Construction trades	375
Extractive and related workers	29
Mechanics, installers, and repairers	1,842
Machinery mechanics, installers, and repairers	160
Vehicle and mobile equipment mechanics	785
Other mechanics, installers, and repairers	255
 Precision production	 322
 Plant and systems	 28
Operators, fabricators, and laborers	16,814
Numerical control machine tool operators	3
Combination machine tool setters, etc.	3
Machine setters, operators, and tenders	342
Hand workers, including assemblers	379
Transportation and material moving machine/vehicle	12,761
Helpers, laborers, and material movers, hand	3,324
 Total all occupations	 36,727

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), 2018.

Table 10

**Ports Users Employment Impact by Industry in Georgia,
Fiscal Year 2017**

Impacted Industry	Employment (full- and part-time jobs)
Agriculture	36,280
Mining	2,536
Utilities	1,522
Construction	3,647
Manufacturing	126,518
Wholesale Trade	23,934
Retail Trade	22,102
Transportation and Warehousing	31,477
Information	4,476
Finance and Insurance	13,223
Real Estate, Rental, Leasing	11,025
Services and Government	123,755
Total	400,493

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), 2018.

Table 11

**Economic Impact of Georgia's Deepwater Ports
On County-Level Employment in Georgia, Fiscal Year 2017
(full- and part-time jobs)**

County	Employment	County	Employment
Appling	616	Dade	305
Atkinson	292	Dawson	725
Bacon	351	Decatur	724
Baker	53	DeKalb	28,797
Baldwin	1,264	Dodge	456
Banks	351	Dooly	324
Barrow	1,683	Dougherty	3,863
Bartow	4,206	Douglas	3,842
Ben Hill	553	Early	499
Berrien	346	Echols	43
Bibb	8,898	Effingham	2,386
Bleckley	256	Elbert	693
Brantley	426	Emanuel	695
Brooks	277	Evans	390
Bryan	1,083	Fannin	640
Bulloch	4,436	Fayette	3,948
Burke	780	Floyd	3,450
Butts	575	Forsyth	6,200
Calhoun	107	Franklin	792
Camden	1,307	Fulton	77,418
Candler	279	Gilmer	676
Carroll	3,581	Glascok	47
Catoosa	1,290	Glynn	5,566
Charlton	177	Gordon	2,236
Chatham	39,025	Grady	566
Chattahoochee	1,045	Greene	535
Chattooga	583	Gwinnett	34,466
Cherokee	6,202	Habersham	1,225
Clarke	5,409	Hall	7,275
Clay	51	Hancock	146
Clayton	12,827	Haralson	584
Clinch	199	Harris	515
Cobb	32,772	Hart	604
Coffee	1,483	Heard	200
Colquitt	1,204	Henry	6,042
Columbia	3,329	Houston	4,726
Cook	341	Irwin	181
Coweta	3,733	Jackson	2,204
Crawford	134	Jasper	233
Crisp	712	Jeff Davis	3,502

(continued)

Table 11 (continued)

**Economic Impact of Georgia's Deepwater Ports
On County-Level Employment in Georgia, Fiscal Year 2017
(full- and part-time jobs)**

County	Employment	County	Employment
Jefferson	648	Richmond	8,698
Jenkins	140	Rockdale	2,921
Johnson	165	Schley	96
Jones	423	Screven	324
Lamar	360	Seminole	211
Lanier	133	Spalding	1,994
Laurens	1,627	Stephens	777
Lee	596	Stewart	108
Liberty	4,306	Sumter	1,371
Lincoln	134	Talbot	83
Long	107	Taliaferro	25
Lowndes	4,244	Tattnall	906
Lumpkin	713	Taylor	208
McDuffie	599	Telfair	292
McIntosh	202	Terrell	235
Macon	263	Thomas	1,549
Madison	394	Tift	1,639
Marion	129	Toombs	1,047
Meriwether	505	Towns	323
Miller	155	Treutlen	118
Mitchell	595	Troup	4,534
Monroe	677	Turner	222
Montgomery	177	Twiggs	196
Morgan	694	Union	680
Murray	901	Upson	562
Muscogee	7,708	Walker	1,330
Newton	2,647	Walton	1,967
Oconee	1,072	Ware	5,229
Oglethorpe	195	Warren	142
Paulding	2,212	Washington	2,980
Peach	866	Wayne	3,203
Pickens	736	Webster	44
Pierce	394	Wheeler	120
Pike	316	White	712
Polk	1,016	Whitfield	5,677
Pulaski	264	Wilcox	158
Putnam	536	Wilkes	270
Quitman	35	Wilkinson	557
Rabun	446	Worth	329
Randolph	179	Georgia Total	439,220

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), 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	5,058.8	18.0	485.1	838.6
Agri. Serv., Forestry, & Fish	1,987.4	34.0	888.9	1,097.7
Mining	7,130.0	62.0	1,024.6	2,463.2
Construction	57,554.8	150.0	7,911.7	17,760.2
Manufacturing	299,982.1	814.0	47,607.9	87,419.0
Trans. & Public Utilities	3,206,541.7	24,924.0	1,140,280.5	1,581,027.3
Wholesale	117,995.8	591.0	47,983.4	50,133.8
Retail Trade	256,917.0	3,988.0	94,462.8	149,551.5
Finance, Ins., & Real Estate	284,453.2	1,426.0	90,929.2	181,387.9
Services	349,754.7	3,568.0	148,767.2	170,038.3
Government	35,280.1	216.0	11,259.2	19,662.9
Total	4,622,655.8	35,793.0	1,591,599.1	2,261,380.5
Distribution of Economic Impact				
1. Direct Impact	3,010,260.6	23,365.0	1,063,343.9	1,472,723.9
2. Indirect & Induced Impacts	1,612,251.1	12,428.0	528,255.1	788,656.5
3. Total Economic Impact	4,622,655.8	35,794.0	1,591,599.1	2,261,380.5
4. Multipliers (e.g., 3/1)	1.536	1.532	1.497	1.536
Composition of Gross State Product				
1. Wages (net of taxes)				1,406,891.0
2. Taxes, Total				355,352.2
a. Local Taxes				58,970.7
b. State Taxes				53,029.5
c. Federal Taxes				261,348.4
3. Profits, dividends, rent and other				499,137.2
4. Total Gross State Product (1+2+3)				2,261,380.5
Tax Accounts				
Total				676,016.3
Local				95,304.2
State				92,049.1
Federal				488,663.5
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.9
Income				528,300.8
State Taxes				30,553.9
Local Taxes				31,634.4
Gross State Product				750,621.9
Initial Expenditure in Dollars				3,012,676,078.0

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, 2018.

Table A-2

**The Economic Impact of Port Industry Activity
at the Georgia Ports Authority's Facilities in Savannah
on Georgia in Fiscal Year 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	4,770.7	17.0	457.8	791.2
Agri. Serv., Forestry, & Fish	1,908.3	33.0	853.7	1,051.6
Mining	6,683.0	58.0	960.1	2,308.7
Construction	53,291.8	140.0	7,320.2	16,448.5
Manufacturing	282,295.2	768.0	44,896.8	82,357.1
Trans. & Public Utilities	3,031,502.8	23,644.0	1,082,876.1	1,496,701.5
Wholesale	111,701.5	561.0	45,423.8	47,459.7
Retail Trade	243,012.5	3,772.0	89,351.4	141,462.9
Finance, Ins., & Real Estate	267,048.2	1,342.0	85,837.1	170,102.8
Services	328,238.6	3,338.0	138,982.4	159,473.7
Government	27,621.4	176.0	8,677.2	14,686.1
Total	4,358,074.1	33,848.0	1,505,636.7	2,132,843.3
Distribution of Economic Impact				
1. Direct Impact	2,837,863.2	22,123.0	1,007,457.9	1,389,537.0
2. Indirect & Induced Impacts	1,520,066.8	11,725.0	498,179.0	743,306.2
3. Total Economic Impact	4,358,074.1	33,849.0	1,505,636.7	2,132,843.3
4. Multipliers (e.g., 3/1)	1.536	1.530	1.494	1.535
Composition of Gross State Product				
1. Wages (net of taxes)				1,330,993.3
2. Taxes, Total				336,071.3
a. Local Taxes				55,770.2
b. State Taxes				50,154.6
c. Federal Taxes				230,146.2
3. Profits, dividends, rent and other				465,778.7
4. Total Gross State Product (1+2+3)				2,132,843.3
Tax Accounts				
Total				639,416.3
Local				90,141.2
State				87,066.5
Federal				462,208.8
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.9
Income				530,161.0
State Taxes				30,657.6
Local Taxes				31,740.3
Gross State Product				751,011.3
Initial Expenditure in Dollars				2,839,961,595.9

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, 2018.

Table A-3

**The Economic Impact of Port Industry Activity
at the Georgia Ports Authority's Facilities in Brunswick
on Georgia in Fiscal Year 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	288.2	1.0	27.3	47.3
Agri. Serv., Forestry, & Fish	79.1	1.0	35.2	46.0
Mining	447.0	4.0	64.4	154.5
Construction	4,263.0	10.0	591.6	1,311.7
Manufacturing	17,686.9	46.0	2,711.0	5,061.9
Trans. & Public Utilities	175,038.9	1,280.0	57,404.5	84,325.8
Wholesale	6,294.3	30.0	2,559.6	2,674.1
Retail Trade	13,904.5	216.0	5,111.3	8,088.7
Finance, Ins., & Real Estate	17,405.0	84.0	5,092.1	11,285.1
Services	21,516.1	230.0	9,784.8	10,564.6
Government	7,658.7	40.0	2,582.0	4,976.8
Total	264,581.7	1,945.0	85,962.4	128,537.2
Distribution of Economic Impact				
1. Direct Impact	172,397.4	1,242.0	55,886.0	83,186.9
2. Indirect & Induced Impacts	92,184.3	703.0	30,076.1	45,350.3
3. Total Economic Impact	264,581.7	1,945.0	85,962.4	128,537.2
4. Multipliers (e.g., 3/1)	1.535	1.566	1.538	1.545
Composition of Gross State Product				
1. Wages (net of taxes)				
2. Taxes, total				75,897.7
a. Local Taxes				19,280.8
b. State Taxes				3,200.5
c. Federal Taxes				2,874.9
3. Profits, dividends, rent and other				31,202.2
4. Total Gross State Product (1+2+3)				33,358.5
				128,537.2
Tax Accounts				
Total				36,600.0
Local				5,163.0
State				4,982.6
Federal				26,454.7
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.3
Income				497,713.9
State Taxes				28,848.7
Local Taxes				29,893.2
Gross State Product				744,217.8
Initial Expenditure in Dollars				172,714,482.1

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, 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	225.9	1.0	21.4	37.1
Agri. Serv., Forestry, & Fish	63.6	1.0	28.5	37.1
Mining	222.6	2.0	33.4	78.3
Construction	3,652.6	10.0	507.8	1,123.3
Manufacturing	11,518.3	35.0	2,042.2	3,556.9
Trans. & Public Utilities	135,636.1	980.0	44,054.1	65,994.2
Wholesale	4,316.1	21.0	1,755.1	1,833.8
Retail Trade	10,676.7	66.0	3,924.8	6,210.4
Finance, Ins., & Real Estate	14,068.5	66.0	3,969.7	9,178.4
Services	16,573.5	175.0	7,611.1	8,113.1
Government	7,226.7	36.0	2,442.6	4,736.7
Total	204,180.5	1,494.0	66,390.7	100,899.5
Distribution of Economic Impact				
1. Direct Impact	132,651.7	949.0	43,029.0	65,586.3
2. Indirect & Induced Impacts	71,384.9	544.0	23,361.6	35,313.2
3. Total Economic Impact	204,180.5	1,494.0	66,390.7	100,899.5
4. Multipliers (e.g., 3/1)	1.539	1.574	1.543	1.538
Composition of Gross State Product				
1. Wages (net of taxes)				58,425.6
2. Taxes, Total				15,083.1
a. Local Taxes				2,562.9
b. State Taxes				2,274.9
c. Federal Taxes				10,245.4
3. Profits, dividends, rent and other				27,390.8
4. Total Gross State Product (1+2+3)				100,899.5
Tax Accounts				
Total				28,459.1
Local				4,078.4
State				3,902.6
Federal				20,478.2
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.2
Income				498,911.9
State Taxes				29,327.5
Local Taxes				30,648.6
Gross State Product				758,238.6
Initial Expenditure in Dollars				133,070,927.3

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, 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	119.7	0.0	11.5	19.7
Agri. Serv., Forestry, & Fish	46.6	1.0	21.0	25.9
Mining	234.8	2.0	33.1	80.4
Construction	1,288.4	3.0	176.8	397.8
Manufacturing	8,343.0	20.0	1,156.1	2,274.4
Trans. & Public Utilities	54,630.7	444.0	19,877.7	27,266.1
Wholesale	2,581.1	13.0	1,049.7	1,096.6
Retail Trade	5,999.4	93.0	2,206.5	3,492.2
Finance, Ins., & Real Estate	6,563.3	33.0	2,064.8	4,197.0
Services	18,606.3	291.0	10,431.9	10,043.7
Government	1,613.0	9.0	537.2	1,007.3
Total	100,026.9	909.0	37,564.6	49,901.1
Distribution of Economic Impact				
1. Direct Impact	65,183.3	637.0	26,129.9	32,743.0
2. Indirect & Induced Impacts	34,843.3	273.0	11,434.9	17,158.2
3. Total Economic Impact	100,026.9	909.0	37,564.6	49,901.1
4. Multipliers (e.g., 3/1)	1.535	1.427	1.438	1.524
Composition of Gross State Product				
1. Wages (net of taxes)				33,396.4
2. Taxes, total				8,195.8
a. Local Taxes				1,391.6
b. State Taxes				1,247.7
c. Federal Taxes				5,556.3
3. Profits, dividends, rent and other				8,309.1
4. Total Gross State Product (1+2+3)				49,901.1
Tax Accounts				
Total				15,764.2
Local				2,249.3
State				2,168.8
Federal				11,346.1
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				13.9
Income				575,661.0
State Taxes				33,236.4
Local Taxes				34,468.8
Gross State Product				764,713.7
Initial Expenditure in Dollars				65,254,686.0

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, 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	4,623.4	17.0	443.5	767.1
Agri. Serv., Forestry, & Fish	1,855.9	32.0	830.2	1,022.3
Mining	6,296.9	55.0	906.2	2,176.7
Construction	51,465.5	135.0	7,067.8	15,885.5
Manufacturing	270,164.3	743.0	43,374.7	79,206.6
Trans. & Public Utilities	2,959,866.4	23,106.0	1,057,293.3	1,460,355.4
Wholesale	108,251.2	544.0	44,020.6	45,993.8
Retail Trade	235,734.8	3,658.0	86,675.2	137,227.8
Finance, Ins., & Real Estate	259,014.5	1,302.0	83,319.4	164,964.3
Services	308,804.7	3,047.0	128,379.5	149,114.1
Government	25,475.4	165.0	7,963.2	13,338.7
Total	4,231,553.0	32,802.0	1,460,274.1	2,070,051.6
Distribution of Economic Impact				
1. Direct Impact	2,754,919.9	21,412.0	976,235.3	1,348,038.0
2. Indirect & Induced Impacts	1,476,633.1	11,390.0	484,038.7	722,013.6
3. Total Economic Impact	4,231,553.0	32,803.0	1,460,274.1	2,070,051.6
4. Multipliers (e.g., 3/1)	1.536	1.532	1.496	1.536
Composition of Gross State Product				
1. Wages (net of taxes)				1,290,673.8
2. Taxes, total				326,164.4
a. Local Taxes				54,090.5
b. State Taxes				48,646.8
c. Federal Taxes				223,427.0
3. Profits, dividends, rent and other				453,213.4
4. Total Gross State Product (1+2+3)				2,070,051.6
Tax Accounts				
Total				620,370.1
Local				87,426.0
State				84,446.4
Federal				448,497.8
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.9
Income				529,708.5
State Taxes				30,632.6
Local Taxes				31,713.4
Gross State Product				750,902.8
Initial Expenditure in Dollars				2,756,750,450.0

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, 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	49.3	0.0	4.7	8.1
Agri. Serv., Forestry, & Fish	11.7	0.0	5.0	6.8
Mining	188.7	2.0	26.0	64.2
Construction	575.0	1.0	79.4	177.2
Manufacturing	5,126.3	9.0	550.6	1,243.4
Trans. & Public Utilities	31,206.8	230.0	10,483.9	14,764.8
Wholesale	1,541.9	7.0	627.1	655.0
Retail Trade	2,489.9	39.0	915.2	1,448.5
Finance, Ins., & Real Estate	2,692.8	14.0	876.7	1,710.6
Services	3,275.5	31.0	1,332.4	1,572.0
Government	646.8	4.0	213.8	398.3
Total	47,804.7	338.0	15,114.8	22,049.3
Distribution of Economic Impact				
1. Direct Impact	31,450.5	214.0	9,850.5	14,148.6
2. Indirect & Induced Impacts	16,354.1	124.0	5,264.3	7,900.5
3. Total Economic Impact	47,804.7	338.0	15,114.8	22,049.3
4. Multipliers (e.g., 3/1)	1.520	1.579	1.534	1.558
Composition of Gross State Product				
1. Wages (net of taxes)				13,438.3
2. Taxes, total				3,296.8
a. Local Taxes				518.9
b. State Taxes				480.1
c. Federal Taxes				20,294.9
3. Profits, dividends, rent and other				5,313.9
4. Total Gross State Product (1+2+3)				22,049.3
Tax Accounts				
Total				6,342.1
Local				863.9
State				850.6
Federal				4,627.7
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				10.7
Income				479,888.3
State Taxes				27,007.6
Local Taxes				27,427.8
Gross State Product				700,055.2
Initial Expenditure in Dollars				31,496,484.0

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, 2018.

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 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	40.6	0.0	3.9	6.6
Agri. Serv., Forestry, & Fish	9.6	0.0	4.2	5.6
Mining	187.0	1.0	25.9	63.6
Construction	573.3	1.0	79.8	176.5
Manufacturing	4,830.1	7.0	484.4	1,137.6
Trans. & Public Utilities	25,201.7	164.0	8,571.5	12,646.9
Wholesale	1,305.5	6.0	530.8	554.6
Retail Trade	2,016.2	32.0	741.0	1,172.6
Finance, Ins., & Real Estate	2,114.2	11.0	698.6	1,337.6
Services	2,494.7	24.0	1,012.3	1,195.5
Government	318.2	2.0	102.4	181.8
Total	39,090.8	250.0	12,255.0	18,479.0
Distribution of Economic Impact				
1. Direct Impact	26,055.2	153.0	8,099.3	12,208.0
2. Indirect & Induced Impacts	13,035.6	97.0	4,155.7	6,271.0
3. Total Economic Impact	39,090.8	250.0	12,255.0	18,479.0
4. Multipliers (e.g., 3/1)	1.500	1.634	1.513	1.514
Composition of Gross State Product				
1. Wages (net of taxes)				10,957.0
2. Taxes, total				2,611.9
a. Local Taxes				406.8
b. State Taxes				380.1
c. Federal Taxes				1,824.9
3. Profits, dividends, rent and other				4,910.1
4. Total Gross State Product (1+2+3)				18,479.0
Tax Accounts				
Total				5,080.8
Local				686.6
State				680.6
Federal				3,713.7
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				9.6
Income				469,476.8
State Taxes				26,073.2
Local Taxes				26,304.6
Gross State Product				707,910.4
Initial Expenditure in Dollars				26,103,530.8

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, 2018.

Table A-9

**The Economic Impact of Private Docks in Savannah
and Brunswick on Georgia in Fiscal Year 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	337.5	1.0	32.4	55.8
Agri. Serv., Forestry, & Fish	120.3	2.0	53.9	67.0
Mining	856.7	8.0	119.7	292.5
Construction	3,818.3	10.0	525.5	1,178.2
Manufacturing	27,171.6	57.0	3,432.8	7,085.0
Trans. & Public Utilities	166,158.4	1,294.0	59,317.2	82,541.3
Wholesale	8,082.1	41.0	3,286.6	3,433.9
Retail Trade	16,898.8	262.0	6,213.9	9,834.8
Finance, Ins., & Real Estate	18,389.3	92.0	5,834.7	11,738.1
Services	45,594.0	685.0	24,830.8	24,322.4
Government	4,435.3	24.0	1,470.2	2,757.1
Total	291,862.7	2,476.0	105,117.8	143,306.0
Distribution of Economic Impact				
1. Direct Impact	191,059.2	1,696.0	72,242.6	93,927.5
2. Indirect & Induced Impacts	100,659.6	780.0	32,875.2	49,378.5
3. Total Economic Impact	291,862.7	2,476.0	105,117.8	143,306.0
4. Multipliers (e.g., 3/1)	1.528	1.460	1.455	1.526
Composition of Gross State Product				
1. Wages (net of taxes)				93,480.5
2. Taxes, total				22,907.4
a. Local Taxes				3,838.9
b. State Taxes				3,462.3
c. Federal Taxes				15,606.2
3. Profits, dividends, rent and other				26,918.1
4. Total Gross State Product (1+2+3)				143,306.0
Tax Accounts				
Total				44,085.8
Local				6,238.5
State				6,039.4
Federal				31,807.9
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				12.9
Income				549,487.7
State Taxes				31,570.0
Local Taxes				32,610.8
Gross State Product				749,110.9
Initial Expenditure in Dollars				191,301,435.8

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, 2018.

Table A-10

**The Economic Impact of Port Investment
at the GPA's Facilities in Savannah and Brunswick
on Georgia in Fiscal Year 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture	80.3	0.0	8.0	14.1
Agri. Serv., Forestry, & Fish	63.8	0.7	25.4	36.4
Mining	1,065.5	5.6	361.3	572.4
Construction	13,331.5	140.4	7,395.1	9,143.2
Manufacturing	8,985.4	39.6	2,266.0	3,271.1
Trans. & Public Utilities	3,238.6	14.6	857.7	1,418.7
Wholesale	1,682.3	8.3	684.1	714.8
Retail Trade	4,039.7	62.6	1,489.3	2,364.0
Finance, Ins., & Real Estate	3,884.5	19.5	1,267.3	2,467.8
Services	21,760.2	163.4	10,462.8	9,632.3
Government	286.8	2.1	86.5	133.7
Total	58,418.5	457.4	24,903.6	29,768.4
Distribution of Economic Impact				
1. Direct Impact	34,700.6	276.7	16,934.3	18,242.9
2. Indirect & Induced Impacts	23,717.9	180.7	7,969.2	11,525.5
3. Total Economic Impact	58,418.5	457.4	24,903.6	29,768.4
4. Multipliers (e.g., 3/1)	1.684	1.654	1.471	1.632
Composition of Gross State Product				
1. Wages (net of taxes)				23,182.6
2. Taxes, total				4,391.1
a. Local Taxes				523.1
b. State Taxes				577.4
c. Federal Taxes				3,290.5
3. Profits, dividends, rent and other				2,194.8
4. Total Gross State Product (1+2+3)				29,768.4
Tax Accounts				
Total				9,408.4
Local				1,091.6
State				1,187.9
Federal				7,128.9
Effects Per Million Dollars of Initial Expenditures				
Employment (jobs)				11.5
Income				624,149.0
State Taxes				29,772.0
Local Taxes				27,359.0
Gross State Product				746,075.0
Initial Expenditure in Dollars				39,900,000.0

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), using the MARAD Port Economic Impact Kit for Georgia, 2018.

Table A-11

**The Economic Impact of Port-Related Activity
on Georgia in Fiscal Year 2017
(thousands of 2017 dollars)**

	Model Output (000 of 2017\$)	Model Employment (jobs)	Model Income (000 of 2017\$)	Model GSP (000 of 2017\$)
Total Economic Impact				
Agriculture, Forestry, Fishing	5,801,820	36,280	1,701,415	1,956,807
Mining	558,832	2,536	128,432	305,307
Utilities	1,605,065	1,522	209,408	602,845
Construction	546,479	3,647	180,035	260,758
Manufacturing	59,231,245	126,518	8,816,632	17,775,861
Wholesale Trade	5,855,559	23,934	2,030,149	3,926,086
Retail Trade	1,787,758	22,102	694,925	1,134,900
Transportation & Warehousing	4,191,378	31,477	1,623,609	2,150,810
Information	2,128,192	4,476	507,374	1,030,502
Finance & Insurance	3,476,123	13,223	938,538	2,011,603
Real Estate, Rental, Leasing	4,509,749	11,025	280,167	3,004,554
Services & Government	11,724,318	123,755	5,887,828	7,173,072
Total	101,416,518	400,493	22,998,514	41,333,105
Distribution of Economic Impact				
1. Direct Impact	60,189,121	154,851	10,146,943	19,234,504
2. Indirect & Induced Impacts	41,227,397	245,642	12,851,571	22,098,601
3. Total Economic Impact	101,416,518	400,493	22,998,514	41,333,105
4. Multipliers (e.g., 3/1)	1.685	2.586	2.267	2.149

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 IMPLAN Online, 2018.

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