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**The Economic Impact of  
Georgia's Deepwater Ports  
On Georgia's Economy in FY 2019**

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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 2019. The ensuing sections contain the comprehensive technical report.*

The statewide economic impact of Georgia's deepwater ports in fiscal year 2019 includes:

- **\$122 billion in sales (11 percent of Georgia's total sales);**
- **\$51 billion in state GDP (8 percent of Georgia's total GDP);**
- **\$29 billion in income (6 percent of Georgia's total personal income);**
- **496,719 full- and part-time jobs (10 percent of Georgia's total employment);**
- **\$6.1 billion in federal taxes;**
- **\$1.7 billion in state taxes; and**
- **\$1.7 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 \$122.4 billion, which is almost 11 percent of Georgia's output in FY 2019. Out of the total, \$71.9 billion represents initial spending, or direct economic impact; \$50.5 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total output impact (\$122.4 billion) by initial spending (\$71.9 billion) yields an average multiplier value of 1.70. On average, therefore, every dollar initially spent by the ports industry and ports users generates an additional 70 cents for the state's economy.

### State GDP (Value Added) Impacts

Measured in terms of GDP or value added, Georgia's deepwater ports contribute \$50.7 billion to the state's economy in fiscal year 2019, which is over 8 percent of Georgia's total GDP. Out of the total, \$24.5 billion represents the direct effects of initial spending, or the direct economic impact; \$26.2 billion is indirect and induced spending, or the re-spending (multiplier) impact.

### Income Impacts

Measured in terms of income, Georgia's deepwater ports contributed \$28.6 billion to the state's economy in fiscal year 2019, which is almost 6 percent of Georgia's total personal income. Of the total, \$13.4 billion represents the

direct effects of initial spending, or the direct economic impact; \$15.2 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 496,719 full- and part-time jobs, which is 10 percent of Georgia's total employment (as defined by a survey of households). This means that one job out of every ten is in some way dependent on the ports. Of the FY 2019 total employment impact, 215,274 jobs represent the direct effects of initial spending, or the direct economic impact; 281,244 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 2019 is \$1.7 billion.

**Local:** The total economic impact of Georgia's deepwater ports on tax collections by local governments in fiscal year 2019 is \$1.7 billion.

**Federal:** The total economic impact of Georgia's deepwater ports on tax collections by the federal government in fiscal year 2019 is \$6.1 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 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 2019.

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 (2019) 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 2019 includes:

- \$122 billion in sales (11 percent of Georgia's total sales);
- \$51 billion in state GDP (8 percent of Georgia's total GDP);
- \$29 billion in income (6 percent of Georgia's total personal income);
- 496,719 full- and part-time jobs (10 percent of Georgia's total employment);
- \$6.1 billion in federal taxes;
- \$1.7 billion in state taxes; and
- \$1.7 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 \$122.4 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 \$122.4 billion output impact accounts for almost 11 percent of Georgia's total output in FY 2019. Out of the \$122.4 billion, \$6.1 billion (8 percent) represents the results from the ports industry and \$116.3 billion (92 percent) represents the results from ports users.

Of the FY 2019 total output impact, \$71.9 billion represents initial spending, or direct economic impact; and \$50.5 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total output impact (\$122.4 billion) by initial spending (\$71.9 billion) yields an average multiplier value of 1.70. On average, therefore, every dollar initially spent by either the ports industry and ports users generates an additional 70 cents for the economy.

Expressed in other dimensions, the ports industry and port users together support \$50.7 billion in state GDP and \$28.6 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 496,719 full- and part-time jobs. The combined impact of

the ports industry and ports users on state tax collections is \$1.7 billion. The combined impact of the ports industry and ports users on local tax collections is \$1.7 billion. The combined impact on federal tax collections is \$6.1 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 93 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 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 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).

### 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 general 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 2019 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 (Table 2). The Georgia Ports Authority also provided capital expenditures (ports investment) in FY 2019 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 development 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 surveys. 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) Studies 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) County-level 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 \$72 billion in Georgia in fiscal year 2019, or about 6.7 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 12 percent of port-related sales, and agriculture, forestry, and mining accounted for the remaining 7 percent.

The IMPLAN modeling system was used to estimate the indirect and induced economic impact of ports users' direct expenditures in fiscal year 2019. 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 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 \$122.4 billion, which is almost 11 percent of Georgia's output in FY 2019.

Out of the total, \$6.1 billion (5 percent) represents the results from the ports industry, of which the GPA's operations at the Port of Savannah contribute 86 percent. Ports users' total output impact, however, is twenty times greater than that of the ports industry — \$116.3 billion. Indeed, ports users account for 95 percent of the total output impact of Georgia's deepwater ports.

Of the FY 2019 total output impact, \$71.9 billion represents initial spending, or direct economic impact; \$50.5 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total output impact (\$122.4 billion) by initial spending (\$71.9 billion) yields an average multiplier value of 1.70. On average, therefore, every dollar initially spent by either the ports industry or ports users generates an additional 70 cents for the state's economy.

## ■ State GDP (Value Added) Impacts ■

Measured in terms of GDP or value added, Georgia's deepwater ports contributed \$50.7 billion to the state's economy in FY 2019, which is 8 percent of Georgia's total GDP. Out of the total GDP impact, \$3 billion (6 percent) represents the results from the ports industry. The GPA's operations at the Port of Savannah contribute 85 percent of this amount. But the \$47.7 billion GDP impact attributed to ports users is almost nineteen 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 2019 total GDP impact, \$24.5 billion represents the direct effects of initial spending, or the direct economic impact; \$26.2 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total GDP impact (\$50.7 billion) by the direct GDP impact (\$24.5 billion) yields an average multiplier value of 2.07. On average, therefore, every dollar of direct GDP produced by the ports industry and ports users yields an additional 107 cents for the state's economy.

## ■ Income Impacts ■

Measured in terms of income, Georgia's deepwater ports contributed \$28.6 billion to the state's economy in fiscal year 2019, which is 6 percent of Georgia's total personal income. Out of the total, \$2.1 billion (7 percent) represents the results from the ports industry. The GPA's operations at the Port of Savannah contribute 85 percent of this amount, but ports users' \$26.5 billion income impact is over twelve times greater. Indeed, users account for 93 percent of the total income impact of Georgia's deepwater ports.

Of the FY 2019 total income impact, \$13.4 billion represents the direct effects of initial spending, or the direct economic impact; \$15.2 billion is indirect and induced spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total income impact (\$28.6 billion) by the direct income impact (\$13.4 billion) yields an average multiplier value of 2.13. On average, therefore, every dollar of direct income produced by the ports industry and ports users generates an additional 113 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 496,719 full- and part-time jobs, which equal 10 percent of Georgia's total employment—based on the household survey definition of employment.

This means that one job out of every ten is in some way dependent on the ports. Out of the 496,719 jobs, 45,695 (9 percent) represent the results from the ports industry. The GPA's operations at the Port of Savannah contribute 85 percent of these 45,695 jobs, but ports users' 451,024-job impact is almost ten times greater, so users account for 91 percent of the total employment impact of Georgia's deepwater ports.

Of the FY 2019 total employment impact, 215,274 jobs represent the direct effects of initial spending, or the direct economic impact; 281,444 jobs constitute the indirect and induced effect of spending, or the re-spending (multiplier) impact. Dividing the FY 2019 total job impact (496,719 jobs) by the direct job impact (215,274 jobs) yields an average multiplier value of 2.31. On average, therefore, each job created directly by the ports industry and ports users yields an additional 1.3 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 2019 is \$1.7 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 2019 is \$1.7 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 2019 is \$6.1 billion.

### Comparisons to Previous Estimates

In 2018, 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 2017 were published in *The Economic Impact of Georgia's Deepwater Ports: FY 2017* (2018). The methods used were very similar to those used in this study. The FY 2017 impacts of Georgia's deepwater ports were 439,220 full- and part-time jobs, \$106 billion in sales, \$44 billion in state GDP, and \$25 billion in income. The job impact therefore is 13 percent higher in FY2019 than in FY2017. Over that same period, the total number of jobs in Georgia increased by 4 percent. Thus, the employment impact of Georgia's deepwater ports rose over three times 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 2017 through FY 2019, the additional 57,499 jobs supported by Georgia's deepwater ports account for 35 percent of statewide job growth, or one of every three net new jobs created.

In 2015, the economic impact estimates for FY 2014 were published in *The Economic Impact of Georgia's Deepwater Ports: FY 2014* (2015). 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. From FY 2014 through FY 2019, 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 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

**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 2019**

| Cargo Type           | Mode              | GPA Total | Savannah  | Brunswick | Percent<br>of Total<br>by Mode |
|----------------------|-------------------|-----------|-----------|-----------|--------------------------------|
| <b>Autos</b>         |                   |           |           |           |                                |
|                      | Long Dist. Truck  | 9,689     | 9,689     | 0         | 1                              |
|                      | Short Dist. Truck | 446,442   | 16,865    | 429,577   | 69                             |
|                      | Rail              | 193,434   | 9,330     | 184,104   | 30                             |
|                      | Total             | 649,565   | 35,884    | 613,681   | 100                            |
| <b>Containerized</b> |                   |           |           |           |                                |
|                      | Long Dist. Truck  | 1,721,006 | 1,721,006 | 0         | 38                             |
|                      | Short Dist. Truck | 1,850,753 | 1,850,753 | 0         | 41                             |
|                      | Rail              | 908,878   | 908,878   | 0         | 20                             |
|                      | Total             | 4,480,637 | 4,480,637 | 0         | 100                            |
| <b>Breakbulk</b>     |                   |           |           |           |                                |
|                      | Long Dist. Truck  | 379,060   | 365,838   | 13,222    | 25                             |
|                      | Short Dist. Truck | 664,342   | 637,898   | 26,444    | 44                             |
|                      | Rail              | 449,854   | 408,050   | 41,804    | 30                             |
|                      | Total             | 1,493,256 | 1,411,786 | 81,470    | 100                            |
| <b>Dry Bulk</b>      |                   |           |           |           |                                |
|                      | Long Dist. Truck  | 842,189   | 0         | 842,189   | 75                             |
|                      | Short Dist. Truck | 0         | 0         | 0         | 0                              |
|                      | Rail              | 280,730   | 0         | 280,730   | 25                             |
|                      | Total             | 1,122,919 | 0         | 1,122,919 | 100                            |
| <b>Liquid Bulk</b>   |                   |           |           |           |                                |
|                      | Long Dist. Truck  | 89,015    | 0         | 89,015    | 17                             |
|                      | Short Dist. Truck | 87,091    | 85,274    | 1,817     | 17                             |
|                      | Rail              | 341,095   | 341,095   | 0         | 66                             |
|                      | Total             | 517,201   | 426,369   | 90,832    | 100                            |

Note: 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), 2020.

**Table 2**

**Cargo Volume for Private Facilities/Docks  
in Savannah and Brunswick  
(Import and Export) in FY 2019**

| Cargo Type  | Cargo Volume <sup>1</sup> |
|-------------|---------------------------|
|             | Total                     |
| Breakbulk   | 3,027,012                 |
| Dry Bulk    | 179,593                   |
| Liquid Bulk | 1,346,720                 |
| Total       | 4,553,325                 |

<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 (based on data provided by PIERS), Terry College of Business, The University of Georgia ([www.selig.uga.edu](http://www.selig.uga.edu)), 2020.

**Table 3**

**Summary of the Economic Impact  
of Georgia's Deepwater Ports on Georgia  
in Fiscal Year 2019  
(millions of 2019 dollars)**

|                                | Total Economic Impact on: |           |        |                   |
|--------------------------------|---------------------------|-----------|--------|-------------------|
|                                | Output                    | State GDP | Income | Employment (jobs) |
| Ports Industry                 | 6,074                     | 2,999     | 2,121  | 45,695            |
| Savannah Cargo-Based Activity  | 5,206                     | 2,561     | 1,804  | 38,920            |
| Brunswick Cargo-Based Activity | 263                       | 128       | 85     | 1,853             |
| Ports Investment               | 311                       | 164       | 125    | 2,476             |
| Private Facilities/Docks       | 294                       | 146       | 107    | 2,446             |
| Ports Users                    | 116,337                   | 47,676    | 26,494 | 451,024           |
| Total Output/Revenue Impact    | 122,411                   | 50,675    | 28,615 | 496,719           |

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](http://www.selig.uga.edu)), 2020.

Table 4

**Economic Impact of Georgia's Deepwater Ports  
on Output (Revenue), Income, and State GDP  
in Georgia, Fiscal Year 2019  
(millions of 2019 dollars)**

|                                | Direct<br>Economic Impact on<br>Output/Revenue | Indirect & Induced<br>Economic Impact on<br>Output/Revenue | Total<br>Economic Impact on<br>Output/Revenue |
|--------------------------------|--|--|---|
| Ports Industry                 | 3,953  | 2,120  | 6,074   |
| Savannah Cargo-Based Activity  | 3,394  | 1,812  | 5,206   |
| Brunswick Cargo-Based Activity | 171  | 91   | 263   |
| Ports Investment               | 195  | 116  | 311   |
| Private Facilities/Docks       | 193  | 101  | 294   |
| Ports Users                    | 67,925   | 48,412   | 116,337                                       |
| Total Output/Revenue Impact    | 71,878   | 50,532   | 122,411                                       |
|                                | Direct<br>Economic Impact on<br>Income         | Indirect & Induced<br>Economic Impact on<br>Income         | Total<br>Economic Impact on<br>Income         |
| Ports Industry                 | 1,427  | 695  | 2,121   |
| Savannah Cargo-Based Activity  | 1,210  | 594  | 1,804   |
| Brunswick Cargo-Based Activity | 56   | 30   | 85  |
| Ports Investment               | 87   | 38   | 125   |
| Private Facilities/Docks       | 74   | 33   | 107   |
| Ports Users                    | 11,985   | 14,508   | 26,494  |
| Total Income Impact            | 13,412   | 15,203   | 28,615  |
|                                | Direct<br>Economic Impact on<br>State GDP      | Indirect & Induced<br>Economic Impact on<br>State GDP      | Total<br>Economic Impact on<br>State GDP      |
| Ports Industry                 | 1,962  | 1,037  | 2,999   |
| Savannah Cargo-Based Activity  | 1,675  | 886  | 2,561   |
| Brunswick Cargo-Based Activity | 83   | 45   | 128   |
| Ports Investment               | 108  | 56   | 164   |
| Private Facilities/Docks       | 96   | 50   | 146   |
| Ports Users                    | 22,503   | 25,173   | 47,676  |
| Total State GDP                | 24,465   | 26,210   | 50,675  |

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](http://www.selig.uga.edu)), 2020.

**Table 5**

**Economic Impact of Georgia's Deepwater Ports  
on Employment in Georgia, Fiscal Year 2019  
(full- and part-time jobs)**

|                                | Direct<br>Economic Impact on<br>Employment | Indirect & Induced<br>Economic Impact on<br>Employment | Total<br>Economic Impact on<br>Employment |
|--------------------------------|--|--|---|
| Ports Industry                 | 29,885                                     | 15,809   | 45,695                                    |
| Savannah Cargo-Based Activity  | 25,395                                     | 13,525   | 38,920                                    |
| Brunswick Cargo-Based Activity | 1,179                                      | 673  | 1,853                                     |
| Ports Investment               | 1,627                                      | 849  | 2,476                                     |
| Private Facilities/Docks       | 1,684                                      | 762  | 2,446                                     |
| Ports Users                    | 185,389                                    | 265,635  | 451,024                                   |
| Total Employment Impact        | 215,274                                    | 281,444  | 496,719                                   |

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), 2020.

**Table 6**

**Economic Impact of Georgia's Deepwater Ports  
on Tax Collections in Georgia, Fiscal Year 2019  
(millions of 2019 dollars)**

|                                | Federal<br>Taxes | State<br>Taxes | Local<br>Taxes |
|--------------------------------|------------------|----------------|----------------|
| Ports Industry                 | 648.3            | 121.8          | 125.6          |
| Savannah Cargo-Based Activity  | 553.2            | 104.4          | 108.1          |
| Brunswick Cargo-Based Activity | 26.3             | 5.0            | 5.2            |
| Ports Investment               | 36.4             | 6.2            | 5.9            |
| Private Facilities/Docks       | 32.4             | 6.2            | 6.4            |
| Ports Users                    | 5,421.5          | 1,553.7        | 1,597.8        |
| Total                          | 6,069.8          | 1,675.5        | 1,723.4        |

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), 2020.

**Table 7**

**Overall Multipliers for  
Output, Employment, Income, and State GDP,  
Fiscal Year 2019**

|                                | Multiplier Values |            |        |           |
|--------------------------------|-------------------|------------|--------|-----------|
|                                | Output            | Employment | Income | State GDP |
| Ports Industry                 | 1.537             | 1.529      | 1.486  | 1.529     |
| Savannah Cargo-Based Activity  | 1.534             | 1.533      | 1.491  | 1.529     |
| Brunswick Cargo-Based Activity | 1.538             | 1.572      | 1.518  | 1.542     |
| Ports Investment               | 1.595             | 1.522      | 1.437  | 1.519     |
| Private Facilities/Docks       | 1.523             | 1.452      | 1.446  | 1.521     |
| Ports Users                    | 1.713             | 2.422      | 2.211  | 2.119     |
| Total                          | 1.703             | 2.307      | 2.134  | 2.071     |

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), 2020.

**Table 8**

**Distribution of Total Economic Impacts of Cargo-Based Activity  
at the Ports of Savannah and Brunswick by Mode of Cargo,  
Fiscal Year 2019**

| Mode/Impact      | Output/Revenue<br>(Mil. \$2019) | State GDP<br>(Mil. \$2019) | Income<br>(Mil. \$2019) | Employment<br>(jobs) |
|------------------|---------------------------------|----------------------------|-------------------------|----------------------|
| Containerized    | 5,067                           | 2,492                      | 1,753                   | 37,765               |
| Breakbulk        | 122                             | 61                         | 46                      | 1,073                |
| Auto/Vehicle     | 194                             | 97                         | 63                      | 1,350                |
| Dry Bulk         | 63                              | 29                         | 20                      | 448                  |
| Liquid Bulk      | 22                              | 10                         | 7                       | 137                  |
| Total            | 5,468                           | 2,690                      | 1,889                   | 40,773               |
| Percent of Total |                                 |                            |                         |                      |
| Containerized    | 92.7                            | 92.7                       | 92.8                    | 92.6                 |
| Breakbulk        | 2.2                             | 2.3                        | 2.4                     | 2.6                  |
| Auto/Vehicle     | 3.6                             | 3.6                        | 3.3                     | 3.3                  |
| Dry Bulk         | 1.1                             | 1.1                        | 1.1                     | 1.1                  |
| Liquid Bulk      | 0.4                             | 0.4                        | 0.4                     | 0.3                  |
| 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), 2020.

Table 9

**Ports Industry Employment Impact by Occupation in Georgia,  
Fiscal Year 2019**

| Occupational Category                                  | Port Industry Impact<br>(full- and part-time jobs) |
|--|--|
| <b>Executive, administrative, and managerial</b>       | <b>3,792</b>                                       |
| Managerial and administrative                          | 2,845  |
| Management support                                     | 947  |
| <b>Professional speciality</b>                         | <b>1,411</b>                                       |
| Engineers  | 241  |
| Architects and surveyors                               | 16   |
| Life scientists  | 14   |
| Computer, math, and operations research                | 234  |
| Physical scientists                                    | 32   |
| Religious workers                                      | 78   |
| Social scientists                                      | 15   |
| Social and recreation workers                          | 54   |
| Lawyers and judicial workers                           | 38   |
| Teachers, librarians, and counselors                   | 232  |
| Health diagnosing                                      | 21   |
| Health assessment and treatment                        | 115  |
| Writers, artists, and entertainers                     | 173  |
| All other professionals                                | 148  |
| <b>Technicians and related support</b>                 | <b>448</b>   |
| Health   | 159  |
| Engineering  | 167  |
| Other technicians                                      | 122  |
| <b>Marketing and sales</b>                             | <b>3,468</b>                                       |
| Cashiers   | 800  |
| Counter and rental clerks                              | 164  |
| Insurance sales agents                                 | 60   |
| Marketing and sales worker supervisors                 | 426  |
| Models, demonstrators, product promoters               | 31   |
| Parts salespersons                                     | 37   |
| Real estate agents and brokers                         | 21   |
| Retail salespersons                                    | 882  |
| Sales engineers  | 8  |
| Securities, commodities, financial services sales      | 29   |
| Travel agents  | 9  |
| All other sales and related                            | 1,003  |
| <b>Administrative support</b>                          | <b>7,403</b>                                       |
| Adjusters, investigators, and collectors               | 352  |
| Communications equipment operators                     | 67   |
| Computer operators                                     | 34   |
| Information clerks                                     | 290  |
| Mail clerks and messengers                             | 203  |
| Postal clerks and mail carriers                        | 51   |
| Material recording, scheduling, dispatch, distributing | 1,902  |
| Records processing                                     | 1,349  |
| Secretaries, stenographers, typists                    | 741  |
| Other administrative support                           | 2,414  |

(continued)



Table 9 (continued)

**Ports Industry Employment Impact by Occupation in Georgia,  
Fiscal Year 2019**

| <u>Occupational Category</u>                       | <u>Port Industry Impact<br/>(full- and part-time jobs)</u> |
|--|--|
| <b>Service</b>                                     | <b>3,399</b>   |
| Cleaning and building service                      | 498  |
| Food preparation and service                       | 2,079  |
| Health service                                     | 164  |
| Personal service                                   | 110  |
| Private household workers                          | 55   |
| Protective service                                 | 475  |
| <b>Agriculture, forestry, and fishing</b>          | <b>207</b>   |
| <b>Production, craft, and repair</b>               | <b>5,668</b>   |
| Blue collar worker supervisors                     | 1,238  |
| Construction trades                                | 755  |
| Extractive and related workers                     | 41   |
| Mechanics, installers, and repairers               | 2,186  |
| Machinery mechanics, installers, and repairers     | 223  |
| Vehicle and mobile equipment mechanics             | 893  |
| Other mechanics, installers, and repairers         | 334  |
| <b>Precision production</b>                        | <b>459</b>   |
| <b>Plant and systems</b>                           | <b>32</b>  |
| <b>Operators, fabricators, and laborers</b>        | <b>19,408</b>  |
| Numerical control machine tool operators           | 11   |
| Combination machine tool setters, etc.             | 6  |
| Machine setters, operators, and tenders            | 502  |
| Hand Workers, including assemblers                 | 568  |
| Transportation and material moving machine/vehicle | 14,411   |
| Helpers, laborers, and material movers, hand       | 3,910  |
| <b>Total all occupations</b>                       | <b>45,695</b>  |

Note: The ports 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)), 2020.

**Table 10**

**Ports Users Employment Impact by Industry in Georgia,  
Fiscal Year 2019**

| Impacted Industry              | Employment<br>(full- and part-time jobs) |
|--------------------------------|--|
| Agriculture                    | 48,676                                   |
| Mining                         | 3,448                                    |
| Utilities                      | 1,624                                    |
| Construction                   | 2,092                                    |
| Manufacturing                  | 140,863                                  |
| Wholesale Trade                | 27,595                                   |
| Retail Trade                   | 23,546                                   |
| Transportation and Warehousing | 42,460                                   |
| Information                    | 4,162                                    |
| Finance and Insurance          | 14,097                                   |
| Real Estate, Rental, Leasing   | 14,769                                   |
| Services and Government        | 127,695                                  |
| <b>Total</b>                   | <b>451,024</b>                           |

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)), 2020.

Table 11

**Economic Impact of Georgia's Deepwater Ports  
On County-Level Employment in Georgia, Fiscal Year 2019  
(full- and part-time jobs)**

| <u>County</u> | <u>Employment</u> | <u>County</u> | <u>Employment</u> |
|---------------|-------------------|---------------|-------------------|
| Appling       | 604               | Dade          | 411               |
| Atkinson      | 235               | Dawson        | 824               |
| Bacon         | 374               | Decatur       | 776               |
| Baker         | 61                | DeKalb        | 31,493            |
| Baldwin       | 1,353             | Dodge         | 482               |
| Banks         | 415               | Dooley        | 324               |
| Barrow        | 1,914             | Dougherty     | 3,984             |
| Bartow        | 4,833             | Douglas       | 5,086             |
| Ben Hill      | 560               | Early         | 560               |
| Berrien       | 392               | Echols        | 55                |
| Bibb          | 9,059             | Effingham     | 3,500             |
| Bleckley      | 299               | Elbert        | 665               |
| Brantley      | 388               | Emanuel       | 701               |
| Brooks        | 314               | Evans         | 401               |
| Bryan         | 2,170             | Fannin        | 707               |
| Bulloch       | 4,940             | Fayette       | 4,745             |
| Burke         | 974               | Floyd         | 3,814             |
| Butts         | 690               | Forsyth       | 7,280             |
| Calhoun       | 108               | Franklin      | 828               |
| Camden        | 1,436             | Fulton        | 91,179            |
| Candler       | 318               | Gilmer        | 732               |
| Carroll       | 3,781             | Glascok       | 48                |
| Catoosa       | 1,501             | Glynn         | 5,396             |
| Charlton      | 183               | Gordon        | 2,522             |
| Chatham       | 45,926            | Grady         | 597               |
| Chattahoochee | 1,035             | Greene        | 608               |
| Chattooga     | 587               | Gwinnett      | 39,471            |
| Cherokee      | 6,923             | Habersham     | 1,337             |
| Clarke        | 6,139             | Hall          | 8,433             |
| Clay          | 53                | Hancock       | 155               |
| Clayton       | 14,537            | Haralson      | 692               |
| Clinch        | 204               | Harris        | 657               |
| Cobb          | 38,532            | Hart          | 744               |
| Coffee        | 1,621             | Heard         | 228               |
| Colquitt      | 1,285             | Henry         | 6,947             |
| Columbia      | 3,566             | Houston       | 5,286             |
| Cook          | 390               | Irwin         | 214               |
| Coweta        | 4,338             | Jackson       | 2,931             |
| Crawford      | 167               | Jasper        | 285               |
| Crisp         | 725               | Jeff Davis    | 3,899             |

(continued)

Table 11 (Continued)

**Economic Impact of Georgia's Deepwater Ports  
On County-Level Employment in Georgia, Fiscal Year 2019  
(full- and part-time jobs)**

| County     | Employment | County               | Employment     |
|------------|------------|----------------------|----------------|
| Jefferson  | 725        | Richmond             | 9,337          |
| Jenkins    | 163        | Rockdale             | 3,267          |
| Johnson    | 173        | Schley               | 105            |
| Jones      | 495        | Screven              | 344            |
| Lamar      | 414        | Seminole             | 213            |
| Lanier     | 162        | Spalding             | 2,139          |
| Laurens    | 1,763      | Stephens             | 774            |
| Lee        | 673        | Stewart              | 118            |
| Liberty    | 4,566      | Sumter               | 1,445          |
| Lincoln    | 144        | Talbot               | 100            |
| Long       | 142        | Taliaferro           | 28             |
| Lowndes    | 4,524      | Tattnall             | 886            |
| Lumpkin    | 809        | Taylor               | 170            |
| McDuffie   | 652        | Telfair              | 290            |
| McIntosh   | 359        | Terrell              | 239            |
| Macon      | 268        | Thomas               | 1,687          |
| Madison    | 468        | Tift                 | 1,751          |
| Marion     | 120        | Toombs               | 1,159          |
| Meriwether | 594        | Towns                | 334            |
| Miller     | 158        | Treutlen             | 127            |
| Mitchell   | 602        | Troup                | 4,910          |
| Monroe     | 754        | Turner               | 227            |
| Montgomery | 185        | Twiggs               | 340            |
| Morgan     | 746        | Union                | 701            |
| Murray     | 1,020      | Upson                | 625            |
| Muscogee   | 8,354      | Walker               | 1,440          |
| Newton     | 3,012      | Walton               | 2,327          |
| Oconee     | 1,332      | Ware                 | 4,788          |
| Oglethorpe | 242        | Warren               | 151            |
| Paulding   | 2,856      | Washington           | 2,630          |
| Peach      | 811        | Wayne                | 2,074          |
| Pickens    | 875        | Webster              | 51             |
| Pierce     | 427        | Wheeler              | 123            |
| Pike       | 351        | White                | 855            |
| Polk       | 1,074      | Whitfield            | 6,205          |
| Pulaski    | 263        | Wilcox               | 150            |
| Putnam     | 601        | Wilkes               | 277            |
| Quitman    | 42         | Wilkinson            | 434            |
| Rabun      | 500        | Worth                | 357            |
| Randolph   | 192        | <b>Georgia Total</b> | <b>496,718</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](http://www.selig.uga.edu)), 2020.

**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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 5,999.7                            | 20.0                          | 575.1                              | 994.6                           |
| Agri. Serv., Forestry, & Fish                              | 2,369.1                            | 39.0                          | 1,059.6                            | 1,307.8                         |
| Mining   | 8,369.1                            | 71.0                          | 1,203.6                            | 2,892.0                         |
| Construction   | 69,610.1                           | 179.0                         | 9,577.0                            | 21,479.1                        |
| Manufacturing  | 354,844.4                          | 937.0                         | 56,601.3                           | 103,655.6                       |
| Trans. & Public Utilities                                  | 3,793,587.4                        | 28,319.0                      | 1,355,144.3                        | 1,885,047.1                     |
| Wholesale  | 138,667.7                          | 673.0                         | 56,389.6                           | 58,916.9                        |
| Retail Trade   | 304,655.6                          | 4,576.0                       | 112,016.7                          | 177,341.2                       |
| Finance, Ins., & Real Estate                               | 336,342.2                          | 1,634.0                       | 107,634.1                          | 214,402.5                       |
| Services   | 412,979.8                          | 4,086.0                       | 175,949.2                          | 200,858.3                       |
| Government   | 40,776.5                           | 243.0                         | 12,991.7                           | 22,615.3                        |
| <b>Total</b>   | <b>5,468,201.9</b>                 | <b>40,773.0</b>               | <b>1,889,140.7</b>                 | <b>2,689,510.6</b>              |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 3,564,852.1                        | 26,574.0                      | 1,265,573.4                        | 1,758,369.2                     |
| 2. Indirect & Induced Impacts                              | 1,903,350.0                        | 14,198.0                      | 623,567.6                          | 931,141.2                       |
| 3. Total Economic Impact                                   | 5,468,201.9                        | 40,773.0                      | 1,889,140.7                        | 2,689,510.6                     |
| 4. Multipliers (e.g., 3/1)                                 | 1.534                              | 1.534                         | 1.493                              | 1.530                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 1,670,225.2                     |
| 2. Taxes, Total  |                                    |                               |                                    | 421,461.2                       |
| a. Local Taxes   |                                    |                               |                                    | 70,132.9                        |
| b. State Taxes   |                                    |                               |                                    | 63,014.7                        |
| c. Federal Taxes   |                                    |                               |                                    | 288,313.3                       |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 597,824.1                       |
| <b>Total Gross State Product (1+2+3)</b>                   |                                    |                               |                                    | <b>2,689,510.6</b>              |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 802,072.0                       |
| Local  |                                    |                               |                                    | 113,258.8                       |
| State  |                                    |                               |                                    | 109,328.6                       |
| Federal  |                                    |                               |                                    | 579,484.5                       |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 11.4                            |
| Income   |                                    |                               |                                    | 529,542.3                       |
| State Taxes  |                                    |                               |                                    | 30,645.7                        |
| Local Taxes  |                                    |                               |                                    | 31,747.4                        |
| Gross State Product  |                                    |                               |                                    | 753,892.9                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 3,567,497,012.1                 |

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, 2020.

**Table A-2**

**The Economic Impact of Port Industry Activity  
at the Georgia Ports Authority's Facilities in Savannah  
on Georgia in Fiscal Year 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 5,712.7                            | 19.0                          | 547.9                              | 947.5                           |
| Agri. Serv., Forestry, & Fish                              | 2,290.1                            | 38.0                          | 1,024.5                            | 1,261.9                         |
| Mining   | 7,922.2                            | 67.0                          | 1,139.3                            | 2,737.6                         |
| Construction   | 65,236.9                           | 168.0                         | 8,969.6                            | 20,133.5                        |
| Manufacturing  | 337,145.0                          | 892.0                         | 53,882.5                           | 98,586.8                        |
| Trans. & Public Utilities                                  | 3,620,345.9                        | 27,105.0                      | 1,298,229.1                        | 1,800,895.6                     |
| Wholesale  | 132,496.7                          | 643.0                         | 53,880.1                           | 56,295.1                        |
| Retail Trade   | 290,867.3                          | 4,369.0                       | 106,948.1                          | 169,320.5                       |
| Finance, Ins., & Real Estate                               | 318,976.4                          | 1,553.0                       | 102,580.3                          | 203,134.3                       |
| Services   | 391,711.2                          | 3,868.0                       | 166,253.8                          | 190,420.3                       |
| Government   | 32,875.9                           | 205.0                         | 10,326.2                           | 17,471.2                        |
| <b>Total</b>   | <b>5,205,580.7</b>                 | <b>38,920.0</b>               | <b>1,803,781.4</b>                 | <b>2,561,203.9</b>              |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 3,393,543.9                        | 25,395.0                      | 1,209,997.2                        | 1,675,010.9                     |
| 2. Indirect & Induced Impacts                              | 1,812,036.9                        | 13,525.0                      | 593,784.7                          | 886,193.0                       |
| 3. Total Economic Impact                                   | 5,205,580.7                        | 38,920.0                      | 1,803,781.4                        | 2,561,203.9                     |
| 4. Multipliers (e.g., 3/1)                                 | 1.534                              | 1.533                         | 1.491                              | 1.529                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 1,594,899.6                     |
| 2. Taxes, Total  |                                    |                               |                                    | 402,275.7                       |
| a. Local Taxes   |                                    |                               |                                    | 66,923.2                        |
| b. State Taxes   |                                    |                               |                                    | 60,140.9                        |
| c. Federal Taxes   |                                    |                               |                                    | 275,211.4                       |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 564,028.6                       |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 2,561,203.9                     |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 765,688.8                       |
| Local  |                                    |                               |                                    | 108,100.3                       |
| State  |                                    |                               |                                    | 104,361.9                       |
| Federal  |                                    |                               |                                    | 553,226.6                       |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 11.5                            |
| Income   |                                    |                               |                                    | 531,170.3                       |
| State Taxes  |                                    |                               |                                    | 30,732.1                        |
| Local Taxes  |                                    |                               |                                    | 31,832.9                        |
| Gross State Product  |                                    |                               |                                    | 754,213.1                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 3,395,862,541.1                 |

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, 2020.

Table A-3

**The Economic Impact of Port Industry Activity  
at the Georgia Ports Authority's Facilities in Brunswick  
on Georgia in Fiscal Year 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 287.0                              | 1.0                           | 27.2                               | 47.1                            |
| Agri. Serv., Forestry, & Fish                              | 78.9                               | 1.0                           | 35.1                               | 45.9                            |
| Mining   | 446.8                              | 4.0                           | 64.4                               | 154.4                           |
| Construction   | 4,373.2                            | 11.0                          | 607.4                              | 1,345.6                         |
| Manufacturing  | 17,699.3                           | 45.0                          | 2,718.8                            | 5,068.9                         |
| Trans. & Public Utilities                                  | 173,241.5                          | 1,214.0                       | 56,915.1                           | 84,151.5                        |
| Wholesale  | 6,171.0                            | 30.0                          | 2,509.5                            | 2,621.8                         |
| Retail Trade   | 13,788.3                           | 208.0                         | 5,068.6                            | 8,020.6                         |
| Finance, Ins., & Real Estate                               | 17,365.8                           | 81.0                          | 5,053.9                            | 11,268.2                        |
| Services   | 21,268.6                           | 220.0                         | 9,695.4                            | 10,438.0                        |
| Government   | 7,900.5                            | 39.0                          | 2,665.5                            | 5,144.1                         |
| <b>Total</b>   | <b>262,621.2</b>                   | <b>1,853.0</b>                | <b>85,359.3</b>                    | <b>128,306.7</b>                |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 171,308.1                          | 1,179.0                       | 55,576.2                           | 83,358.3                        |
| 2. Indirect & Induced Impacts                              | 91,313.1                           | 673.0                         | 29,782.9                           | 44,948.2                        |
| 3. Total Economic Impact                                   | 262,621.2                          | 1,853.0                       | 85,359.3                           | 128,306.7                       |
| 4. Multipliers (e.g., 3/1)                                 | 1.533                              | 1.572                         | 1.536                              | 1.539                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 75,325.6                        |
| 2. Taxes, total  |                                    |                               |                                    | 19,185.6                        |
| a. Local Taxes   |                                    |                               |                                    | 3,209.7                         |
| b. State Taxes   |                                    |                               |                                    | 2,873.9                         |
| c. Federal Taxes   |                                    |                               |                                    | 13,101.9                        |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 33,795.5                        |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 128,306.7                       |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 36,383.2                        |
| Local  |                                    |                               |                                    | 5,158.5                         |
| State  |                                    |                               |                                    | 4,966.7                         |
| Federal  |                                    |                               |                                    | 26,258.0                        |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 10.8                            |
| Income   |                                    |                               |                                    | 497,331.9                       |
| State Taxes  |                                    |                               |                                    | 28,937.9                        |
| Local Taxes  |                                    |                               |                                    | 30,055.2                        |
| Gross State Product  |                                    |                               |                                    | 747,557.7                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 171,634,471.0                   |

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, 2020.

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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 217.0                              | 1.0                           | 20.5                               | 35.7                            |
| Agri. Serv., Forestry, & Fish                              | 62.1                               | 1.0                           | 27.8                               | 36.3                            |
| Mining   | 225.8                              | 2.0                           | 33.7                               | 79.2                            |
| Construction   | 3,726.4                            | 10.0                          | 519.1                              | 1,145.7                         |
| Manufacturing  | 11,395.2                           | 34.0                          | 2,003.2                            | 3,498.4                         |
| Trans. & Public Utilities                                  | 127,657.8                          | 870.0                         | 41,633.1                           | 63,326.9                        |
| Wholesale  | 3,986.7                            | 19.0                          | 1,621.2                            | 1,693.9                         |
| Retail Trade   | 10,141.9                           | 153.0                         | 3,728.3                            | 5,899.1                         |
| Finance, Ins., & Real Estate                               | 13,559.0                           | 61.0                          | 3,777.8                            | 8,861.6                         |
| Services   | 15,911.5                           | 164.0                         | 7,406.1                            | 7,804.5                         |
| Government   | 7,417.6                            | 36.0                          | 2,510.1                            | 4,877.3                         |
| <b>Total</b>   | <b>194,300.7</b>                   | <b>1,350.0</b>                | <b>63,281.0</b>                    | <b>97,258.0</b>                 |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 126,705.7                          | 852.0                         | 41,177.8                           | 63,769.9                        |
| 2. Indirect & Induced Impacts                              | 67,595.1                           | 498.0                         | 22,103.3                           | 33,487.9                        |
| 3. Total Economic Impact                                   | 194,300.7                          | 1,350.0                       | 63,281.0                           | 97,258.0                        |
| 4. Multipliers (e.g., 3/1)                                 | 1.533                              | 1.585                         | 1.537                              | 1.525                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 55,611.3                        |
| 2. Taxes, Total  |                                    |                               |                                    | 14,454.6                        |
| a. Local Taxes   |                                    |                               |                                    | 2,504.3                         |
| b. State Taxes   |                                    |                               |                                    | 2,205.5                         |
| c. Federal Taxes   |                                    |                               |                                    | 9,744.6                         |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 27,192.2                        |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 97,258.0                        |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 27,204.0                        |
| Local  |                                    |                               |                                    | 3,948.9                         |
| State  |                                    |                               |                                    | 3,757.0                         |
| Federal  |                                    |                               |                                    | 19,497.9                        |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 10.6                            |
| Income   |                                    |                               |                                    | 498,309.7                       |
| State Taxes  |                                    |                               |                                    | 29,584.9                        |
| Local Taxes  |                                    |                               |                                    | 31,096.1                        |
| Gross State Product  |                                    |                               |                                    | 765,863.5                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 126,991,252.2                   |

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, 2020.



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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 146.1                              | 0.0                           | 14.0                               | 24.1                            |
| Agri. Serv., Forestry, & Fish                              | 56.9                               | 1.0                           | 25.7                               | 31.7                            |
| Mining   | 286.7                              | 2.0                           | 40.4                               | 98.3                            |
| Construction   | 1,573.9                            | 4.0                           | 215.8                              | 485.9                           |
| Manufacturing  | 10,185.9                           | 23.0                          | 1,411.3                            | 2,776.8                         |
| Trans. & Public Utilities                                  | 66,664.7                           | 525.0                         | 24,260.8                           | 33,283.4                        |
| Wholesale  | 3,149.8                            | 16.0                          | 1,280.8                            | 1,338.2                         |
| Retail Trade   | 7,322.9                            | 110.0                         | 2,693.3                            | 4,262.4                         |
| Finance, Ins., & Real Estate                               | 8,010.7                            | 39.0                          | 2,520.1                            | 5,122.4                         |
| Services   | 22,714.4                           | 343.0                         | 12,736.3                           | 12,261.5                        |
| Government   | 1,969.3                            | 11.0                          | 655.6                              | 1,229.9                         |
| <b>Total</b>   | <b>122,081.9</b>                   | <b>1,073.0</b>                | <b>45,852.5</b>                    | <b>60,914.7</b>                 |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 79,558.9                           | 752.0                         | 31,897.5                           | 39,974.8                        |
| 2. Indirect & Induced Impacts                              | 42,523.0                           | 322.0                         | 13,955.0                           | 20,940.1                        |
| 3. Total Economic Impact                                   | 122,081.9                          | 1,073.0                       | 45,852.5                           | 60,914.7                        |
| 4. Multipliers (e.g., 3/1)                                 | 1.534                              | 1.427                         | 1.437                              | 1.524                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 40,764.7                        |
| 2. Taxes, total  |                                    |                               |                                    | 10,003.8                        |
| a. Local Taxes   |                                    |                               |                                    | 1,698.9                         |
| b. State Taxes   |                                    |                               |                                    | 1,523.1                         |
| c. Federal Taxes   |                                    |                               |                                    | 6,781.9                         |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 10,146.1                        |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 60,914.7                        |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 19,242.1                        |
| Local  |                                    |                               |                                    | 2,745.7                         |
| State  |                                    |                               |                                    | 2,647.3                         |
| Federal  |                                    |                               |                                    | 13,849.0                        |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 13.5                            |
| Income   |                                    |                               |                                    | 575,704.1                       |
| State Taxes  |                                    |                               |                                    | 33,238.8                        |
| Local Taxes  |                                    |                               |                                    | 34,474.4                        |
| Gross State Product  |                                    |                               |                                    | 764,819.5                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 79,645,897.3                    |

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](http://www.selig.uga.edu)), using the MARAD Port Economic Impact Kit for Georgia, 2020.

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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 5,549.9                            | 19.0                          | 532.5                              | 920.6                           |
| Agri. Serv., Forestry, & Fish                              | 2,229.8                            | 37.0                          | 997.3                              | 1,228.2                         |
| Mining   | 7,561.3                            | 64.0                          | 1,088.6                            | 2,614.0                         |
| Construction   | 63,333.6                           | 162.0                         | 8,707.4                            | 19,546.3                        |
| Manufacturing  | 325,003.8                          | 866.0                         | 52,265.4                           | 95,341.8                        |
| Trans. & Public Utilities                                  | 3,542,943.0                        | 26,520.0                      | 1,270,451.4                        | 1,762,028.3                     |
| Wholesale  | 128,865.7                          | 625.0                         | 52,403.5                           | 54,752.4                        |
| Retail Trade   | 282,775.4                          | 4,247.0                       | 103,972.3                          | 164,610.7                       |
| Finance, Ins., & Real Estate                               | 310,023.5                          | 1,510.0                       | 99,780.9                           | 197,403.8                       |
| Services   | 368,619.2                          | 3,526.0                       | 153,498.2                          | 178,042.8                       |
| Government   | 30,490.2                           | 191.0                         | 9,532.3                            | 15,971.9                        |
| <b>Total</b>   | <b>5,067,395.8</b>                 | <b>37,765.0</b>               | <b>1,753,229.9</b>                 | <b>2,492,461.1</b>              |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 3,303,190.4                        | 24,598.0                      | 1,175,085.1                        | 1,629,779.2                     |
| 2. Indirect & Induced Impacts                              | 1,764,205.4                        | 13,166.0                      | 578,144.9                          | 862,681.8                       |
| 3. Total Economic Impact                                   | 5,067,395.8                        | 37,765.0                      | 1,753,229.9                        | 2,492,461.1                     |
| 4. Multipliers (e.g., 3/1)                                 | 1.534                              | 1.535                         | 1.492                              | 1.529                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 1,549,978.0                     |
| 2. Taxes, total  |                                    |                               |                                    | 391,225.7                       |
| a. Local Taxes   |                                    |                               |                                    | 65,048.4                        |
| b. State Taxes   |                                    |                               |                                    | 58,459.6                        |
| c. Federal Taxes   |                                    |                               |                                    | 267,717.5                       |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 551,257.4                       |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 2,492,461.1                     |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 744,453.9                       |
| Local  |                                    |                               |                                    | 105,071.5                       |
| State  |                                    |                               |                                    | 101,441.2                       |
| Federal  |                                    |                               |                                    | 537,941.2                       |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 11.4                            |
| Income   |                                    |                               |                                    | 530,415.3                       |
| State Taxes  |                                    |                               |                                    | 30,689.6                        |
| Local Taxes  |                                    |                               |                                    | 31,787.9                        |
| Gross State Product  |                                    |                               |                                    | 754,059.4                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 3,305,390,729.2                 |

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, 2020.

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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 64.4                               | 0.0                           | 6.1                                | 10.6                            |
| Agri. Serv., Forestry, & Fish                              | 15.0                               | 0.0                           | 6.5                                | 8.8                             |
| Mining   | 199.3                              | 2.0                           | 27.6                               | 67.9                            |
| Construction   | 674.0                              | 2.0                           | 92.6                               | 208.1                           |
| Manufacturing  | 5,742.9                            | 10.0                          | 662.8                              | 1,439.7                         |
| Trans. & Public Utilities                                  | 42,246.6                           | 313.0                         | 14,035.7                           | 19,446.2                        |
| Wholesale  | 1,955.5                            | 10.0                          | 795.3                              | 830.8                           |
| Retail Trade   | 3,298.6                            | 50.0                          | 1,212.4                            | 1,919.2                         |
| Finance, Ins., & Real Estate                               | 3,574.0                            | 18.0                          | 1,167.2                            | 2,271.1                         |
| Services   | 4,345.2                            | 40.0                          | 1,747.1                            | 2,083.6                         |
| Government   | 729.6                              | 4.0                           | 239.3                              | 440.2                           |
| <b>Total</b>   | <b>62,845.0</b>                    | <b>448.0</b>                  | <b>19,992.7</b>                    | <b>28,726.2</b>                 |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 41,063.1                           | 288.0                         | 12,944.1                           | 18,183.5                        |
| 2. Indirect & Induced Impacts                              | 21,781.9                           | 160.0                         | 7,048.5                            | 10,542.7                        |
| 3. Total Economic Impact                                   | 62,845.0                           | 448.0                         | 19,992.7                           | 28,726.2                        |
| 4. Multipliers (e.g., 3/1)                                 | 1.530                              | 1.556                         | 1.545                              | 1.580                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 17,804.1                        |
| 2. Taxes, total  |                                    |                               |                                    | 4,332.0                         |
| a. Local Taxes   |                                    |                               |                                    | 658.8                           |
| b. State Taxes   |                                    |                               |                                    | 617.8                           |
| c. Federal Taxes   |                                    |                               |                                    | 3,055.5                         |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 6,590.0                         |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 28,726.2                        |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 8,360.0                         |
| Local  |                                    |                               |                                    | 1,115.2                         |
| State  |                                    |                               |                                    | 1,107.9                         |
| Federal  |                                    |                               |                                    | 6,136.9                         |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 10.9                            |
| Income   |                                    |                               |                                    | 486,317.0                       |
| State Taxes  |                                    |                               |                                    | 26,949.3                        |
| Local Taxes  |                                    |                               |                                    | 27,126.5                        |
| Gross State Product  |                                    |                               |                                    | 698,754.7                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 41,110,521.7                    |

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, 2020.

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 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 22.3                               | 0.0                           | 2.1                                | 3.7                             |
| Agri. Serv., Forestry, & Fish                              | 5.2                                | 0.0                           | 2.2                                | 3.0                             |
| Mining   | 95.9                               | 1.0                           | 13.2                               | 32.6                            |
| Construction   | 302.2                              | 1.0                           | 42.1                               | 93.1                            |
| Manufacturing  | 2,516.7                            | 4.0                           | 258.5                              | 598.9                           |
| Trans. & Public Utilities                                  | 14,075.2                           | 91.0                          | 4,763.2                            | 6,962.4                         |
| Wholesale  | 710.0                              | 3.0                           | 288.8                              | 301.6                           |
| Retail Trade   | 1,116.8                            | 16.0                          | 410.4                              | 649.8                           |
| Finance, Ins., & Real Estate                               | 1,174.9                            | 6.0                           | 388.1                              | 743.7                           |
| Services   | 1,389.4                            | 13.0                          | 561.5                              | 665.8                           |
| Government   | 169.8                              | 1.0                           | 54.4                               | 96.0                            |
| <b>Total</b>   | <b>21,578.6</b>                    | <b>137.0</b>                  | <b>6,784.6</b>                     | <b>10,150.7</b>                 |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 14,334.0                           | 84.0                          | 4,468.8                            | 6,661.8                         |
| 2. Indirect & Induced Impacts                              | 7,244.5                            | 52.0                          | 2,316.0                            | 3,488.7                         |
| 3. Total Economic Impact                                   | 21,578.6                           | 137.0                         | 6,784.6                            | 10,150.7                        |
| 4. Multipliers (e.g., 3/1)                                 | 1.505                              | 1.631                         | 1.518                              | 1.524                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 6,067.1                         |
| 2. Taxes, total  |                                    |                               |                                    | 1,445.2                         |
| a. Local Taxes   |                                    |                               |                                    | 222.4                           |
| b. State Taxes   |                                    |                               |                                    | 208.7                           |
| c. Federal Taxes   |                                    |                               |                                    | 1,013.8                         |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 2,638.4                         |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 10,150.7                        |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 2,812.0                         |
| Local  |                                    |                               |                                    | 377.4                           |
| State  |                                    |                               |                                    | 375.2                           |
| Federal  |                                    |                               |                                    | 2,059.6                         |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 9.5                             |
| Income   |                                    |                               |                                    | 472,511.3                       |
| State Taxes  |                                    |                               |                                    | 26,130.4                        |
| Local Taxes  |                                    |                               |                                    | 26,285.7                        |
| Gross State Product  |                                    |                               |                                    | 706,939.7                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 14,358,611.7                    |

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, 2020.

Table A-9

**The Economic Impact of Private Docks in Savannah  
and Brunswick on Georgia in Fiscal Year 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 344.9                              | 1.0                           | 33.1                               | 56.8                            |
| Agri. Serv., Forestry, & Fish                              | 127.1                              | 2.0                           | 57.1                               | 70.8                            |
| Mining   | 856.7                              | 7.0                           | 119.8                              | 292.5                           |
| Construction   | 3,955.2                            | 10.0                          | 544.8                              | 1,220.4                         |
| Manufacturing  | 27,461.7                           | 57.0                          | 3,500.3                            | 7,189.2                         |
| Trans. & Public Utilities                                  | 163,872.9                          | 1,232.0                       | 59,093.9                           | 82,459.7                        |
| Wholesale  | 8,021.1                            | 39.0                          | 3,261.9                            | 3,408.0                         |
| Retail Trade   | 17,211.6                           | 259.0                         | 6,329.4                            | 10,017.0                        |
| Finance, Ins., & Real Estate                               | 18,709.4                           | 91.0                          | 5,922.9                            | 11,946.1                        |
| Services   | 48,956.9                           | 724.0                         | 27,017.7                           | 26,252.3                        |
| Government   | 4,461.6                            | 24.0                          | 1,478.6                            | 2,772.4                         |
| <b>Total</b>   | <b>293,979.4</b>                   | <b>2,446.0</b>                | <b>107,359.3</b>                   | <b>145,685.2</b>                |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 192,568.4                          | 1,684.0                       | 74,263.2                           | 95,943.6                        |
| 2. Indirect & Induced Impacts                              | 101,411.1                          | 762.0                         | 33,096.1                           | 49,741.8                        |
| 3. Total Economic Impact                                   | 293,979.4                          | 2,446.0                       | 107,359.3                          | 145,685.2                       |
| 4. Multipliers (e.g., 3/1)                                 | 1.527                              | 1.452                         | 1.446                              | 1.518                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 95,496.6                        |
| 2. Taxes, total  |                                    |                               |                                    | 23,373.2                        |
| a. Local Taxes   |                                    |                               |                                    | 3,947.0                         |
| b. State Taxes   |                                    |                               |                                    | 3,550.2                         |
| c. Federal Taxes   |                                    |                               |                                    | 15,875.8                        |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 26,815.4                        |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 145,685.2                       |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 45,003.2                        |
| Local  |                                    |                               |                                    | 6,398.0                         |
| State  |                                    |                               |                                    | 6,182.3                         |
| Federal  |                                    |                               |                                    | 32,423.1                        |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 12.7                            |
| Income   |                                    |                               |                                    | 556,794.9                       |
| State Taxes  |                                    |                               |                                    | 32,063.0                        |
| Local Taxes  |                                    |                               |                                    | 33,181.6                        |
| Gross State Product  |                                    |                               |                                    | 755,563.8                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 192,816,571.7                   |

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, 2020.

Table A-10

**The Economic Impact of Port Investment  
at the GPA's Facilities in Savannah and Brunswick  
on Georgia in Fiscal Year 2019  
(thousands of 2019 dollars)**

|  | Model<br>Output<br>(000 of 2019\$) | Model<br>Employment<br>(jobs) | Model<br>Income<br>(000 of 2019\$) | Model<br>GSP<br>(000 of 2019\$) |
|--|------------------------------------|-------------------------------|------------------------------------|---------------------------------|
| <b>Total Economic Impact</b>                               |                                    |                               |                                    |                                 |
| Agriculture  | 402.0                              | 1.3                           | 39.9                               | 69.7                            |
| Agri. Serv., Forestry, & Fish                              | 367.7                              | 4.0                           | 117.3                              | 201.4                           |
| Mining   | 3,615.4                            | 17.5                          | 1,214.2                            | 1,930.4                         |
| Construction   | 79,133.4                           | 916.2                         | 48,397.7                           | 58,313.1                        |
| Manufacturing  | 126,890.8                          | 719.8                         | 38,482.7                           | 52,243.8                        |
| Trans. & Public Utilities                                  | 17,282.2                           | 75.3                          | 4,494.4                            | 7,515.7                         |
| Wholesale  | 12,297.4                           | 59.2                          | 5,000.8                            | 5,224.9                         |
| Retail Trade   | 20,612.7                           | 308.8                         | 7,607.5                            | 12,061.9                        |
| Finance, Ins., & Real Estate                               | 18,553.7                           | 93.5                          | 6,276.5                            | 11,710.7                        |
| Services   | 30,125.8                           | 269.1                         | 13,358.1                           | 14,104.3                        |
| Government   | 1,534.1                            | 10.8                          | 462.3                              | 713.6                           |
| <b>Total</b>   | <b>310,815.3</b>                   | <b>2,475.6</b>                | <b>125,451.5</b>                   | <b>164,089.6</b>                |
| <b>Distribution of Economic Impact</b>                     |                                    |                               |                                    |                                 |
| 1. Direct Impact   | 194,519.4                          | 1,626.6                       | 87,339.5                           | 107,830.7                       |
| 2. Indirect & Induced Impacts                              | 116,295.9                          | 849.0                         | 38,112.0                           | 56,258.9                        |
| 3. Total Economic Impact                                   | 310,815.3                          | 2,475.6                       | 125,451.5                          | 164,089.6                       |
| 4. Multipliers (e.g., 3/1)                                 | 1.598                              | 1.522                         | 1.436                              | 1.522                           |
| <b>Composition of Gross State Product</b>                  |                                    |                               |                                    |                                 |
| 1. Wages (net of taxes)                                    |                                    |                               |                                    | 115,696.8                       |
| 2. Taxes, total  |                                    |                               |                                    | 23,205.1                        |
| a. Local Taxes   |                                    |                               |                                    | 2,992.5                         |
| b. State Taxes   |                                    |                               |                                    | 3,152.0                         |
| c. Federal Taxes   |                                    |                               |                                    | 17,060.5                        |
| 3. Profits, dividends, rent and other                      |                                    |                               |                                    | 25,187.8                        |
| 4. Total Gross State Product (1+2+3)                       |                                    |                               |                                    | 164,089.6                       |
| <b>Tax Accounts</b>  |                                    |                               |                                    |                                 |
| Total  |                                    |                               |                                    | 48,480.1                        |
| Local  |                                    |                               |                                    | 5,856.3                         |
| State  |                                    |                               |                                    | 6,227.5                         |
| Federal  |                                    |                               |                                    | 36,396.3                        |
| <b>Effects Per Million Dollars of Initial Expenditures</b> |                                    |                               |                                    |                                 |
| Employment (jobs)  |                                    |                               |                                    | 11.5                            |
| Income   |                                    |                               |                                    | 582,141.0                       |
| State Taxes  |                                    |                               |                                    | 28,898.0                        |
| Local Taxes  |                                    |                               |                                    | 27,176.0                        |
| Gross State Product  |                                    |                               |                                    | 761,437.0                       |
| Initial Expenditure in Dollars                             |                                    |                               |                                    | 215,500,000.0                   |

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, 2020.

## Bibliography

### Printed Publications:

American Association of Port Authorities (April 2015). *U.S. Public Port Facts*.

American Association of Port Authorities (February 2006). *America's Ports Today*.

Booz-Allen & Hamilton Inc. (March 20, 1998). *Economic Impacts of Georgia's Deepwater Ports of Savannah and Brunswick*. Prepared for the Georgia Ports Authority.

Bureau of Business Research and Economic Development, Georgia Southern University (January 25, 1999). *The Regional Impacts of Georgia's Deep Water Ports*. Prepared for the Georgia Ports Authority.

Connecticut Center for Economic Analysis, Department of Economics, University of Connecticut (May 23, 2001). *The Economic Impact of Connecticut's Deepwater Ports: An IMPLAN and REMI Analysis*. Prepared for the Connecticut Coastline Port Authority.

Executive Office of the President (2017). *North American Industry Classification System*. Office of Management and Budget.

Fisher, Jamie; Humphreys, Jeffrey; Kochut, Beata; Monteiro, Heather; Martin, Parker; Borgman, Racheal (February 2, 2015). *Transportation Competitiveness Initiative, Draft Research Report*. Research conducted by the Governor's Development Council, UGA Selig Center for Economic Growth, and the Center of Innovation for Logistics. Published by the Georgia Regional Transportation Authority, Atlanta, GA.

Georgia Department of Community Affairs and Georgia Department of Industry Trade and Tourism (FY 2003). Results from the Business Retention and Expansion Process (BREP) Survey.

Georgia Ports Authority (2017). *CY2017 GPA Ports Guide and Directory*. Georgia Ports Authority.

Georgia Ports Authority (2016). *Annual Report FY2016*. Georgia Ports Authority.

Hall, Jeffrey. (2017) *Jobs Supported by State Exports, 2016*. Office of Trade and Economic Analysis, International Trade Administration, U.S. Department of Commerce.

Lahr, Michael L. (August 2005). *Economic Impacts of the New York/New Jersey Port Industry 2004*. Published by Rutgers Economic Advisory Service and A. Strauss-Wieder, Inc.

Hamilton, Gregory L.; Rasmussen, David; and Zeng, Xiaogin (August 2000). *Rural Inland Waterways Economic Impact Kit Analysis Manual*. Institute for Economic Advancement, University of Arkansas at Little Rock.

Humphreys, Jeffrey M. (2018). *The Economic Impact of Georgia's Deepwater Ports: FY 2017*. Selig Center for Economic Growth, Terry College of Business, University of Georgia. Published by the Georgia Ports Authority.

Humphreys, Jeffrey M. (2015). *The Economic Impact of Georgia's Deepwater Ports: FY 2014*. Selig Center for Economic Growth, Terry College of Business, University of Georgia. Published by the Georgia Ports Authority.

Humphreys, Jeffrey M. (2012). *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2011*. Selig Center for Economic Growth, Terry College of Business, University of Georgia. Published by the Georgia Ports Authority.

Humphreys, Jeffrey M. (2010). *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2009*. Selig Center for Economic Growth, Terry College of Business, University of Georgia. Published by the Georgia Ports Authority.

Humphreys, Jeffrey M. (2007). *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2006*. Selig Center for Economic Growth, Terry College of Business, University of Georgia. Published by the Georgia Ports Authority.

Humphreys, Jeffrey M. and Bart, Barbara D. (April 2004). *The Economic Impact of Georgia's Deepwater Ports on Georgia's Economy in FY 2003*. Selig Center for Economic Growth, Terry College of Business, University of Georgia; Savannah State University; and the Georgia Ports Authority.

International Trade Administration (2017). *U.S. Trade Overview 2016*. Office of Economic Analysis, Trade Policy and Analysis, Industry and Analysis, International Trade Administration.

Intervisions (2017). *Port of Vancouver: 2016 Economic Impact Study*. Prepared for Vancouver Fraser Port Authority.

Marine Transportation System National Advisory Council (December 18, 2000). *U.S. Economic Growth and the Marine Transportation System*.

Martin Associates (March 2019). *The 2018 National Economic Impact of the U.S. Coastal Port System*. Prepared for American Association of Port Authorities.

Martin Associates (April 5, 2019). *The Local and Regional Economic Impacts of the Port of Houston, 2018*. Prepared for the Port of Houston Authority.

Martin Associates (April 26, 2019). *The Local and Regional Economic Impacts of Port Everglades, Fiscal Year 2018, Final Report*. Prepared for Port Everglades Department.

Martin Associates (July 17, 2019). *The Local and Regional Economic Impacts of the Port of Jacksonville, 2018*. Prepared for the Jacksonville Port Authority.

Martin Associates (March 2015). *The 2014 National Economic Impact of the U.S. Coastal Port System*. Prepared for the American Association of Port Authorities.

Martin Associates (April 30, 2014). *Economic Impacts and Competitiveness of the West Coast Ports and Factors That Could Threaten Growth*. Prepared for the Pacific Maritime Association.

Martin Associates (June 2013). *The Local and Regional Economic Impacts of the Port of Tampa*. Prepared for the Tampa Port Authority.

Martin Associates (June 6, 2008). *The Local and Regional Economic Impacts of the U.S. Deepwater Port System, 2007*. Prepared for the American Association of Port Authorities.

Martin Associates (January 25, 2005). *The 2003 Economic Impact of the Port of Seattle*. Prepared for the Port of Seattle.



Miller, Ronald E. and Blair, Peter D. (1985). *Input-Output Analysis: Foundations and Extensions*. Published by Prentice-Hall, Inc., London.

Nachtmann, Heather (July 31, 2002). *Economic Evaluation of the Impact of Waterways on the State of Arkansas*. Department of Agricultural Engineering, University of Arkansas.

Rasmussen Chris and Hall Jeffrey (September 2014). *Jobs Supported by State Exports 2013*. Published by the Office of Trade and Economic Analysis, Department of Commerce, International Trade Administration.

Ryan, Timothy P. (February 2001). *The Economic Impacts of the Ports of Louisiana and the Maritime Industry*. Published by the University of New Orleans, New Orleans, LA.

Trade Partnership Worldwide, LLC., (2019). *Trade and American Jobs: The Impact of Trade on U.S. and State-Level Employment: 2019 Update*. 1001 Connecticut Avenue, NW, Washington, DC, 20036.

Trade Partnership Worldwide, LLC., (2016). *Trade and American Jobs: The Impact of Trade on U.S. and State-Level Employment: 2016 Update*. 1001 Connecticut Avenue, NW, Washington, DC, 20036.

U.S. Department of Commerce, Bureau of Economic Analysis (1999). *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*. Washington, D.C.: U.S. Government Printing Office.

U.S. Government Printing Office. (2009). House Report 111-243. 111<sup>th</sup> Congress, 1<sup>st</sup> Session, House of Representatives. Maritime Workforce Development Act, July 31, 2009.

U.S. Department of Commerce, U.S. Census Bureau News, CB09-56 (April 9, 2009). *A Profile of U.S. Exporting Companies, 2006-2007*.

U.S. Department of Transportation, Maritime Administration (October 2000). *MARAD Port Economic Impact Kit: Volume I: Handbook for Undertaking Port Economic Impact Assessments and Volume II: A User's Guide*.

U.S. Department of Transportation, Maritime Administration (June 2005). *A Report to Congress on the Performance of Ports and the Intermodal System*.

U.S. Department of Transportation, Maritime Administration, Task Force (September 1999). *A Report to Congress An Assessment of the U.S. Marine Transportation System*.

U.S. Department of Transportation, Maritime Administration, Office of Policy and Plans (February 2011). *U.S. Water Transportation Statistical Snapshot*.

U.S. Department of Transportation, Maritime Administration, Office of Ports and Domestic Shipping (October 1998). *A Report to Congress on the Status of the Public Ports of the United State 1996-1997*.

U.S. Department of Transportation, Research and Innovation Technology Administration, Bureau of Transportation Statistics (2009). *America's Container Ports: Freight Hubs That Connect Our Nation to Global Markets*.

Von Nessen, Joseph C. (October 2019). *The Economic Impact of the South Carolina Ports Authority: A Statewide and Regional Analysis*. Division of Research, Moore School of Business, University of South Carolina.

Washington Economics Group, Inc. (November 23, 2003). *A Forecast of Florida's International Trade Flows and the Economic Impact of Florida Seaports*. Prepared for the Florida Seaport Transportation and Economic Development Council.

Wilber Smith Associates Inc. (October 2008). *South Carolina State Ports Authority Economic Impact Study*. Prepared for the South Carolina State Ports Authority.