

***The Economic Impact of the
South Carolina Ports Authority
A Statewide and Regional Analysis***



UNIVERSITY OF
SOUTH CAROLINA

Darla Moore School of Business

Developed by:
Division of Research
Moore School of Business
University of South Carolina
September 2015

Commissioned by:

South Carolina Applied Research Center (ARC) for Supply Chain and Logistics

South Carolina Research Authority (SCRA)



Study Prepared by:

Joseph Von Nessen, Ph.D.
Research Economist, Division of Research
joey.vonnessen@moore.sc.edu

EXECUTIVE SUMMARY

The seaports of South Carolina are one of the state's most vital resources and a major contributor to interstate and international commerce. Simply put, there are very few locations where container-shipped goods exported from and imported to the United States can be docked. Thus, seaports provide a unique competitive advantage for attracting and maintaining export-oriented industries, which is a key component of any strategy that seeks to expand South Carolina's current global manufacturing presence. For example, in recent years, South Carolina has rapidly developed into a major global competitor for advanced manufacturing. This can be observed by examining the number of marquee companies that have located within the state. Access to port facilities is a primary factor in this development.

The purpose of this study is to specifically document the economic impact of the South Carolina Ports Authority (SCPA) on the state of South Carolina as a whole and on four regional areas of the state. The SCPA currently owns and operates public marine terminals at two port facilities (the Port of Charleston and the Port of Georgetown) as well as a separate Inland Port located in Greer, South Carolina. This study will provide estimates detailing all impacts resulting from both the SCPA facilities themselves as well as the total economic impacts that derive from South Carolina business transactions that require use of these port facilities. The key findings of this study are as follows:

- ***The total economic impact resulting from all activities associated with the SCPA on the state of South Carolina is estimated to be approximately \$53.0 billion.*** This figure reflects the dollar value of all final goods and services produced in South Carolina that can be attributed (either directly or indirectly) to the SCPA. This impact corresponds to 187,206 jobs and over \$10.2 billion in labor income for South Carolinians that would not exist otherwise.
- ***Approximately 50.5 percent of the statewide economic impact associated with the SCPA is concentrated within the Upstate region of South Carolina.*** This is largely because the primary users of SCPA port facilities are manufacturers, which are also disproportionately concentrated within the Upstate region. The manufacturing industry comprises 15.3 percent of all jobs in the Upstate, compared to 11.5 percent for South Carolina as a whole. The Midlands experiences 25.6 percent of all economic impacts associated with the SCPA, followed by the Pee Dee region (12.0%), and the Lowcountry region (11.9%).
- ***The total economic impact that comes about through the SCPA yields a statewide employment multiplier of 2.4.*** This implies that, on average, for every 10 jobs that are directly supported by SCPA port operations or port users, an additional 14 jobs are created elsewhere in South Carolina.

- *The \$53.0 billion in annual economic output supported by the SCPA represents approximately 9.3% of South Carolina's total annual gross state product. **This implies that the SCPA generates economic activity (directly and indirectly) that brings in over \$912 million in tax revenue annually for the state of South Carolina.***
- *According to the South Carolina Department of Commerce, **approximately 4,900 new jobs and \$742 million in new economic activity was announced in South Carolina in 2014 from companies that are likely to require the use of a port facility to do business.** These announcements reflect the initial stages of future economic growth that will occur throughout the state – growth that is largely due to South Carolina's port facilities and the competitive advantage they provide to these companies.*
- ***The ongoing success of South Carolina's automotive cluster – a primary driver of statewide economic growth since 2010 – is largely due to the SCPA.** This cluster has a supply chain and distribution channel that is more globally based relative to many other industry clusters in South Carolina. Thus, its success and ongoing development largely depends on the capacity and efficiency of the SCPA port facilities. In the last three years alone, the dollar volume of total cargo exported from SCPA port facilities sourced at South Carolina businesses in transportation equipment manufacturing increased from 33.0 percent to 40.9 percent.*
- ***The average labor income across all jobs supported (directly or indirectly) by the SCPA in South Carolina is \$54,532. This is approximately 39.4 percent higher than the average labor income in South Carolina and nearly 9.2 percent higher than the average labor income among all manufacturing jobs in South Carolina.***
- ***The majority of export and import activity across SCPA port facilities derives from the manufacturing industry, which is one of the few industries in South Carolina that generates high wage jobs that also experience wage growth.** High-quality, high-wage jobs are vital to the health of the state's economy, and through its direct support of manufacturing, the SCPA is taking an active role in ensuring that the manufacturing sector continues to thrive.*

Table of Contents

<u>EXECUTIVE SUMMARY</u>	3
<u>SECTION I – INTRODUCTION</u>	6
<u>SECTION II – EXPORT-ORIENTED MANUFACTURING IN SOUTH CAROLINA</u>	7
<i>Figure 1 – Manufacturing Employment Growth in South Carolina (2002-2007)</i>	8
<i>Figure 2 – S.C. Manufacturing Sub-Sector Employment Growth (2001-2014)</i>	9
<u>SECTION III – ECONOMIC IMPACT METHODOLOGY</u>	10
<i>The Economic Multiplier Effect</i>	10
<i>Data Inputs: Port Operations and Port Users</i>	12
<i>Table 1 – Direct Employment Attributable to SCPA Port Operations</i>	13
<i>Figure 3 – Percentage of Total SCPA Port Users by County</i>	14
<i>Table 2 – Total Export/Import Activity by SCPA Facility</i>	15
<i>Table 3 – Top 10 Product Types Exported through SCPA Facilities</i>	15
<u>SECTION IV – STATEWIDE RESULTS</u>	16
<i>Statewide Economic Impact: Port Operations</i>	17
<i>Table 4 – Statewide Economic Impact of SCPA Port Operations</i>	17
<i>Statewide Economic Impact: Port Users</i>	18
<i>Table 5 – Total Direct Business Activity in S.C. Supported by SCPA Facilities (2014)</i>	19
<i>Table 6 – Statewide Economic Impact of SCPA Port Users</i>	19
<i>Implications for Wage Growth in South Carolina</i>	20
<i>Table 7 – Total Export/Import Activity Across all SCPA Port Facilities by Industry</i>	21
<i>Figure 4 – Annual Labor Income Comparisons: SCPA, Manufacturing, and South Carolina</i>	21
<i>Economic Impacts Outside of South Carolina</i>	22
<i>Figure 5 – Total Direct Business Activity Supported by SCPA Facilities (2014)</i>	22
<u>SECTION V – REGIONAL RESULTS</u>	23
<i>Table 8 – Regional Definitions within South Carolina</i>	23
<i>Regional Results: The Midlands</i>	23
<i>Table 9 – Total Economic Impact of SCPA: Midlands</i>	23
<i>Regional Results: Pee Dee</i>	23
<i>Table 10 – Total Economic Impact of SCPA: Pee Dee</i>	24
<i>Regional Results: The Upstate</i>	24
<i>Table 11 – Total Economic Impact of SCPA: Upstate</i>	24
<i>Regional Results: The Lowcountry</i>	24
<i>Table 12 – Total Economic Impact of SCPA: Lowcountry</i>	25
<i>Figure 6 – Percentage of Total SCPA Economic Output by Region</i>	25
<i>Figure 7 – Percentage of Manufacturing Employment by Region</i>	26
<u>SECTION VI – CONTRIBUTIONS TO STATE TAX REVENUE</u>	27
<i>Table 13 – State Tax Revenue Derived from Construction of the Palmetto Pipeline</i>	27
<u>SECTION VII – CONCLUSION</u>	27
<u>APPENDIX I</u>	30

SECTION I – INTRODUCTION

The seaports of South Carolina have been one of the state’s most important resources for hundreds of years. In fact, one of the primary reasons for the initial founding of the city of Charleston in 1670 was to take advantage of its natural seaport to facilitate the export of cotton. Seaports function as gateways for interstate and international commerce, and in an increasingly global economy, they are becoming even more important for South Carolina’s economic growth in the 21st century.

Because of the widely recognized importance of seaports to the state, the South Carolina Ports Authority (SCPA) was founded in 1942 with a stated mission to “...promote, develop, and facilitate waterborne commerce to meet the current and future needs of its customers, and for the economic benefit of the citizens and businesses of South Carolina.” The SCPA currently owns and operates public marine terminals at two port facilities: the Port of Charleston and the Port of Georgetown. It also owns and operates a separate Inlands Port located in Greer that connects to the Port of Charleston.

In recent years, export activity has increased significantly in South Carolina. This is due in large part to the fact that the composition of industries contributing to economic growth has changed. For example, South Carolina has rapidly developed into a major global competitor for the advanced manufacturing sector – including the automotive, aerospace, tire industries that have each become an economic pillar in the state. This can be observed directly by examining the number of marquee companies that have located throughout South Carolina over the last decade.

Firms and industries that comprise the advanced manufacturing sector typically have globally based supply chains as well as distribution channels. Access to the port facilities owned and operated by the SCPA has been a primary factor in the development of this sector, and these facilities continue to provide a major competitive advantage for South Carolina going forward.

The purpose of this study is to specifically quantify the economic impact of the SCPA on the state of South Carolina. This will include an analysis of the impact of the port facilities themselves as well as the total economic impacts that derive from South Carolina business transactions that require use of these port facilities. The study begins with an overview of export-oriented manufacturing in South Carolina and how South Carolina has developed into a major global presence for the advanced manufacturing industry in the 21st century. Section III then provides a discussion of the economic impact methodology used, including a description of direct, indirect, and induced impacts. Sections IV and V highlight the main findings of the study, including the statewide and regional impact estimates of the SCPA port facilities and port users. Section VI follows with a discussion of the accompanying state tax revenue that is generated from the total volume of economic activity supported by the SCPA. Section VII then offers a brief conclusion.

SECTION II – EXPORT-ORIENTED MANUFACTURING IN SOUTH CAROLINA

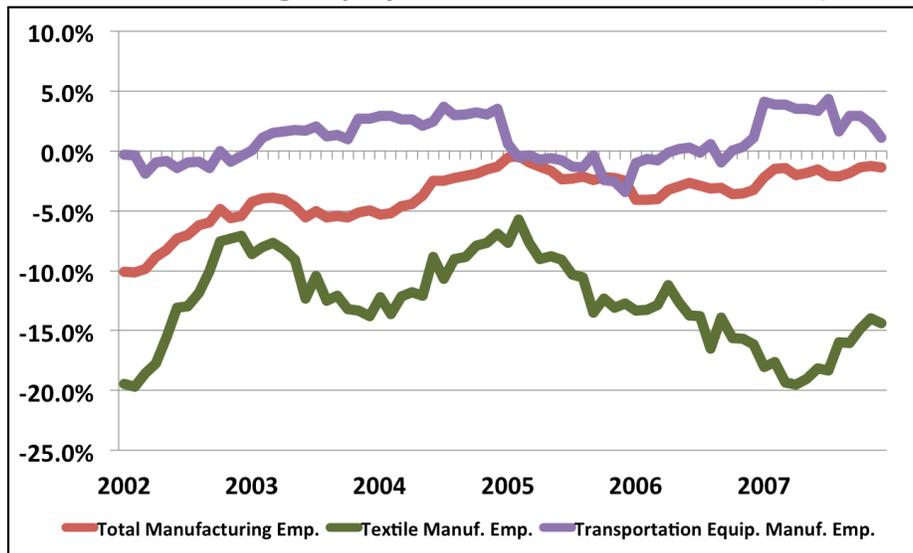
Manufacturing has been a mainstay of South Carolina’s economy over the past 100 years. Yet the composition of the manufacturing industry has changed significantly over time – especially over the last twenty-five years. Throughout the 1900s, textile production represented one of the state’s leading economic sectors. Early in the century, the focus of textile mills in South Carolina was largely on the production of cotton in an economy dominated by agriculture. Following World War II, as agriculture gave way to industry across the U.S. economy, textile mills in South Carolina shifted their focus from cotton to synthetic fabrics.

In the 1990s, however, a rapidly emerging global economy began a transition that would ultimately shift the majority of textile manufacturing out of South Carolina altogether because of increased international competition. At the same time, these market forces began to accelerate levels of foreign direct investment that had begun as early as the 1970s when Michelin’s North American headquarters located in Greenville, South Carolina. Increasing globalization was also a key contributor to a

newly emerging statewide automotive cluster. Following the arrival of BMW's first North American assembly plant in Spartanburg in 1994, South Carolina experienced a rapid development of this cluster that has incorporated a wide range of suppliers and businesses that actively contribute to South Carolina's economy. In recent years, this has also included a major expansion of statewide tire production. As of 2015, South Carolina produces more tires than any other state in the nation.

Despite this newly emerging automotive cluster, the rapid decline of textiles generated a negative net effect on manufacturing employment that existed throughout the early 21st century, as Figure 1 illustrates. The textile industry and the transportation equipment industry (in which the automotive cluster is housed) comprise the two biggest manufacturing subsectors in South Carolina. As Figure 1 shows, the rise in transportation equipment manufacturing (and automotive manufacturing in particular) was not enough to offset the decline in textiles. Thus, the manufacturing industry experienced a net decline in total employment between 2002 and 2007.

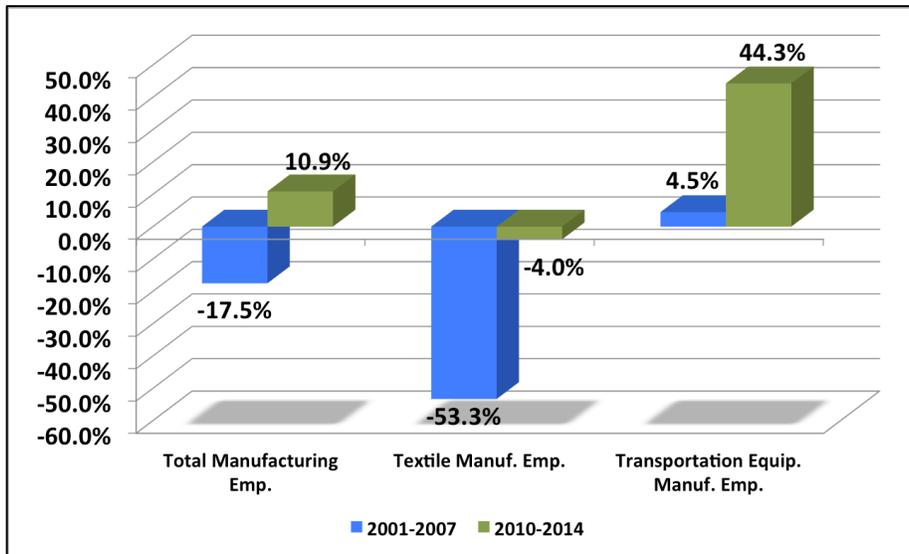
Figure 1 – Manufacturing Employment Growth in South Carolina (2002-2007)



Although the automotive cluster has continued to expand, the 2007 arrival of Boeing in Charleston marked the catalyst for a burgeoning aerospace cluster that has sprung up over the last eight years – largely in direct response to Boeing’s arrival. A 2014 study by the Moore School of Business found that the aerospace cluster has grown at a faster rate than any other South Carolina cluster since 2007 and currently consists of approximately 466 private sector firms employing 17,114 full-time workers.¹ In addition, South Carolina has a major military presence that includes four military aviation facilities across the state that also comprise part of the aerospace cluster.

With the combined growth of the automotive, tire, and aerospace clusters, manufacturing in South Carolina has seen sizable gains since 2010. Figure 2 summarizes these trends. Of special note is the significant growth in transportation equipment manufacturing of 44.3 percent over the last four years (2010-2014).

Figure 2 – S.C. Manufacturing Sub-Sector Employment Growth (2001-2014)



¹ Source: *Uncovering the Stealth Cluster: The Economic Impact of Civilian and Military Aerospace on South Carolina – 2014*; published by the University of South Carolina’s Moore School of Business – August 2014

With the automotive, tire, and aerospace clusters having been major drivers for overall economic growth in South Carolina since 2010, the port facilities owned and operated by the SCPA are as important today as they have ever been. Both of these clusters have supply chains and distribution channels that are more globally based relative to other industry clusters in South Carolina. Thus, their success and ongoing development largely depend on the capacity and efficiency of the state's port facilities. Over the last three years, the dollar volume of total cargo exported from SCPA port facilities sourced at businesses in the transportation equipment manufacturing industry increased from 33.0% to 40.9%.² The SCPA will continue to be a critical component of any strategy that seeks to continue to expand South Carolina's global manufacturing presence.

SECTION III – ECONOMIC IMPACT METHODOLOGY

The SCPA facilitates a large volume of shipping-based business activity that generates billions of dollars in economic activity and directly employs thousands of workers across the state every year. Yet these activities do not provide a complete picture of the impact of the SCPA on South Carolina's economy. The expenditures that occur within the port facilities themselves and the expenditures of the businesses that use these port facilities both lead to additional job creation and economic activity throughout South Carolina by way of the economic multiplier effect (or economic ripple effect).

The Economic Multiplier Effect

Economic multiplier effects can be divided into *direct*, *indirect*, and *induced* impacts. The direct impact reflects all in-state purchases made by the port facilities themselves and the businesses that directly utilize these port facilities. These include, for example, employee wages and benefits, equipment, building construction and remodeling, technology services, vendors, and other overhead or

² Source: U.S. Census – Foreign Trade Division

administrative costs. This spending activity increases demand and leads to the creation of new jobs and more income for employees and suppliers of these businesses.

The indirect impact reflects additional economic activity that results from inter-industry linkages between local firms in South Carolina. For example, when a large automotive company purchases materials from in-state vendors in order to produce vehicles that will be shipped overseas, these in-state vendors experience an increase in demand. To satisfy this demand, they must purchase additional inputs from their suppliers – such as additional staff and equipment. Suppliers of this additional staff and equipment must then purchase additional supplies as well, and so on. These indirect effects ripple through the economy and affect many sectors of South Carolina.

The induced impact reflects additional economic activity that results from increases in the spending of household income. For example, when the aforementioned automotive company purchases materials from one of its suppliers and the overall demand for this supplier firm rises, some of the staff working for this supplier will see a rise in their income levels. Part of this income will then be spent locally on, for example, food, entertainment, or housing. These industries will then also see an increase in demand for their goods and services, which will lead to higher incomes for some of their employees, part of which will also be spent locally.

These successive rounds of indirect and induced spending do not go on forever, which is why we can calculate a value for each of them. In each round, money is “leaked out” for a variety of reasons. For example, firms may purchase some of their supplies from vendors located outside of South Carolina. In addition, employees will save part of their income or spend part of it with firms located outside of the state. In order to determine the total economic impact that will result from an initial direct impact, economic multipliers are used. An economic multiplier can be used to determine the total impact (direct, indirect, and induced) that results from an initial

change in economic activity (the direct impact). Multipliers are different in each sector of the economy and are largely determined by the size of the local supplier network as well as the particular region being examined. In addition, economic multipliers are available to calculate not just the total impact, but also the total employment and income levels associated with the total impact.

To estimate the impact of the SCPA on the state of South Carolina, the Division of Research used a detailed structural model (known as an input-output model) of the South Carolina economy containing specific information on economic linkages between different industries at the county-level. This study also utilized the input-output modeling software *IMPLAN* in calculating estimates.

Data Inputs: Port Operations and Port Users

In this analysis, the direct impact of the SCPA is assumed to come from two specific sources: *Port Operations* and *Port Users*. The direct impacts arising from port operations simply consist of all payroll and non-payroll expenditures associated with the operation of the SCPA port facilities. The SCPA provides a full range of cargo handling and storage services, directly employing 484 full-time workers. In addition, many companies throughout South Carolina regularly ship cargo through the port facilities, with many transportation companies facilitating this trade. These businesses include freight forwarders, marine shipping agents, customs brokers, marine cargo handling, and general freight trucking. Table 1 (next page) displays all full-time employment estimates associated with these business activities in South Carolina.

Table 1 – Direct Employment Attributable to SCPA Port Operations³

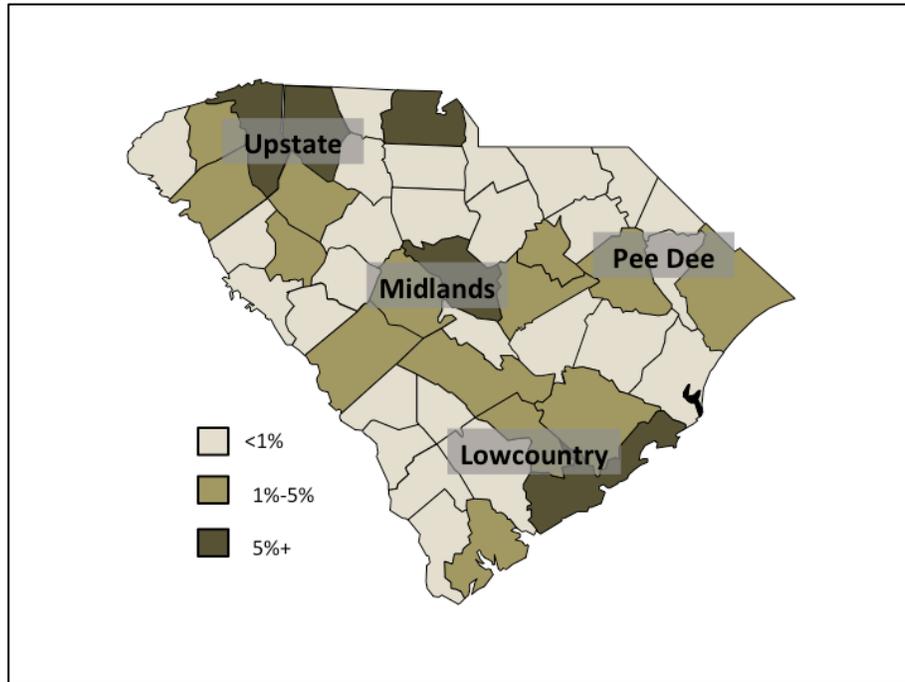
Category	Employment
SCPA Cargo Handling Services	484
Freight Transportation Arrangement	2,721
Marine Cargo Handling	1,775
Trucking	3,350

Total	8,330

The direct impacts arising from port users refer to all business activities in South Carolina that require a port facility to be completed. Many businesses throughout the state depend on the Port of Charleston, the Port of Georgetown, and the Inland Port located in Greer to receive and/or ship cargo. While these firms are not entirely dependent on port facilities for all of their business transactions, the availability of the port system is nevertheless critical to their success and, in many cases, is instrumental in major manufacturing business location decisions. Utilization of the SCPA port facilities is a major competitive advantage for businesses located in South Carolina – and is therefore a competitive advantage for South Carolina itself as it recruits new businesses to the state. Over 3,000 South Carolina businesses located throughout the state either shipped or received cargo through SCPA facilities in 2014. Figure 3 highlights the concentration of these firms by county.

³ Data for SCPA Cargo Handling Services were obtained from the SCPA – all other data from the U.S. Bureau of Labor Statistics (BLS); North American Industry Classification System (NAICS) codes associated with each category are, in listed order: 483111, 488510, 488320, and 484122; data obtained from the BLS represent annual figures from 2014.

Figure 3 – Percentage of Total SCPA Port Users by County



Although the SCPA port users are concentrated primarily within the major metropolitan regions of the state (Greenville/Spartanburg, Columbia, Charleston), they extend statewide. Of the 46 South Carolina counties, 43 contain at least one port user.

In 2014, South Carolina exported nearly \$30.5 billion in cargo through the three port facilities owned and operated by the SCPA. Similarly, \$46.3 billion in cargo was imported over the same period.⁴ Table 2 breaks these figures down by port facility.

⁴ All export and import data in this report were retrieved from the Foreign Trade Division of the U.S. Census

Table 2 – Total Export/Import Activity by SCPA Facility

Port Facility	Total Exports (in 2014 dollars)	Total Imports (in 2014 dollars)
Port of Charleston	\$30,404,327,952	\$45,065,176,077
Port of Georgetown	\$445,588	\$16,308,277
Inland Port in Greer	\$70,574,292	\$1,225,111,572

Total	\$30,475,347,832	\$46,306,595,926

Since 2011, the total dollar volume of export activity (adjusted for inflation) has grown by 28.6 percent, although total cargo weight has risen by just 5.6 percent. A similar phenomenon can be observed with import activity, which has risen 16.2% and 7.3% in dollar volume and cargo weight, respectively. This implies that South Carolina is shipping more goods that are relatively lighter and of higher value. For example, these changes may illustrate increased shipments of lighter automobiles that are more fuel efficient or increased shipments of more expensive goods such as computer electronics or advanced composite materials. Table 3 provides a breakdown of the cargo shipped from all SCPA port facilities in 2014 by product type. The top ten product types – ranked by export volume – are displayed. Note that products encompassing the automotive and tire clusters are ranked first and fourth, respectively. This highlights the importance of the SCPA for the ongoing health and development of these clusters. For a complete listing of all product categories, see Appendix I.

Table 3 – Top 10 Product Types Exported through SCPA Facilities

Product Description	Exports	Imports
Vehicles, Except Railway Or Tramway, And Parts Etc	\$8,554,476,382	\$5,070,712,464
Nuclear Reactors, Boilers, Machinery Etc.; Parts	\$4,058,560,465	\$10,813,384,502
Plastics And Articles Thereof	\$1,960,456,581	\$1,379,909,667
Rubber And Articles Thereof	\$932,274,361	\$2,126,160,220
Electric Machinery Etc; Sound Equip; TV Equip; Pts	\$850,293,266	\$2,865,924,044
Paper & Paperboard & Articles (inc Paper Pulp Artl)	\$700,357,545	\$349,990,661
Beverages, Spirits And Vinegar	\$620,565,578	\$240,581,639
Organic Chemicals	\$588,643,638	\$2,107,494,612
Meat And Edible Meat Offal	\$537,661,993	\$30,664,481
Miscellaneous Chemical Products	\$504,066,231	\$485,309,301

Although Tables 2 and 3 display the total volume of exports and imports that flow through the SCPA port facilities, not all of this cargo is destined for, or originates from businesses in South Carolina. For example, a manufacturing firm in nearby North Carolina may ship or receive cargo via ground transportation to the Port of Charleston. In this case, the economic impact derived from the firm in North Carolina would be concentrated within the state of North Carolina, not South Carolina. According to data from Wilbur Smith Associates and the U.S. Foreign Trade Division, approximately 74 percent of the total cargo exported through SCPA port facilities originates from businesses located in South Carolina; conversely, approximately 26 percent of the total cargo imported through SCPA port facilities is destined for businesses in South Carolina.⁵ Combining these percentages with 2014 trade data yields the direct impacts associated with port users that will serve as the direct impact estimates in this report.

SECTION IV – STATEWIDE RESULTS

The structural input-output model outlined above used to evaluate the impact of the SCPA port facilities on South Carolina calculates economic impacts in terms of three specific measures: economic output, employment, and labor income. Economic output is simply defined as the dollar value of the final goods and services purchased that can be attributed (directly or indirectly) to the SCPA. It can also be thought of as an aggregate measure of total spending resulting from an initial direct expenditure. Because it includes all spending by consumers and businesses on both goods and services, it is an all-inclusive measure of the impact on total economic activity. Employment measures the impact on jobs in terms of the total number of positions. Labor income represents total employee compensation, including wages, salaries, and benefits.

⁵ Source: *South Carolina Ports Authority Economic Impact Study*; prepared by Wilbur Smith Associates, Inc. – October 2008

Statewide Economic Impact: Port Operations

As summarized above in Table 1, the total direct impact of the SCPA operations is approximately 8,330 employees. This includes SCPA cargo handling services, freight transportation arrangement, marine cargo handling, and select trucking services. These direct impacts also lead to indirect and induced impacts through increases in demand for goods and services in other related local industries and through increases in household spending activity – all of which are estimated using economic multipliers. Each impact is reported in Table 4, along with the accompanying totals. These totals represent the overall impact of the SCPA port operations on the state of South Carolina.

Table 4 – Statewide Economic Impact of SCPA Port Operations

	Employment	Labor Income	Economic Output
Direct Impact	8,330	\$456,352,395	\$1,404,606,894
Indirect Impact	5,200	\$246,496,676	\$676,649,689
Induced Impact	4,032	\$151,134,475	\$510,997,209
Total Impact	17,562	\$853,983,546	\$2,592,253,792

The approximately \$1.4 billion in direct economic output leads to an additional \$676.6 million in indirect effects, which is the estimated total dollar value of the increased demand for goods and services of in-state suppliers that result from the \$1.4 billion in direct procurement activity from the SCPA port operations. This direct output also leads to another \$510.9 million in induced effects, which represents the total increase in household spending that occurs across a wide variety of industries in South Carolina.

The combination of the direct, indirect, and induced impacts leads to a total impact of nearly \$2.6 billion on the state of South Carolina that is associated with the SCPA port operations.

Table 4 also details the indirect and induced impacts for labor income and employment. The \$676.6 million in indirect effects is associated with 5,200

additional employees working to fill the increased demand for industry related in-state suppliers throughout South Carolina. This indirect employment is also associated with \$246.5 million in additional labor income. Another 4,032 employees are supported through the \$510.9 million estimated induced impact. These are employees who work in industries that experience an increase in demand due to increased household spending. For example, if a cargo transportation-related purchase led to an increase in demand for a particular supplier, this would lead to additional income for some of the supplier's employees. Additional spending on the part of the supplier's employees that results from their increased income reflects the induced impact. This spending leads to increased demand in a variety of industries that ultimately supports these 4,032 jobs, \$510.9 million in economic output, and \$151.1 million in labor income. In sum, the total economic impact of the SCPA port operations is approximately \$2.6 billion in total economic output, which corresponds to 17,562 jobs and \$853.9 million in labor income.

Statewide Economic Impact: Port Users

Despite the significant impact of the SCPA port operations, the principal value of the SCPA to the state of South Carolina comes from its ability to enable business activity in the state that would not otherwise exist. The global supply chains and global distribution channels of many South Carolina firms make access to a port facility critically important, offering an important competitive advantage not available in many other states. Table 5 (next page) summarizes the total direct business activity – by port facility – that is supported in South Carolina. These estimates are generated by adjusting the total dollar value of all exports and imports highlighted in Table 2 to include only the dollar value of cargo that originates from or is destined for businesses in South Carolina.

Table 5 – Total Direct Business Activity in S.C. Supported by SCPA Facilities (2014)

Port Facility	Total Exports	Total Imports
Port of Charleston	\$22,499,202,684	\$11,716,945,780
Port of Georgetown	\$329,735	\$4,240,152
Inland Port in Greer	\$52,224,976	\$318,529,009

Total	\$22,551,757,396	\$12,039,714,941

In sum, approximately \$34.5 billion in economic activity is directly supported by port facilities in South Carolina. These dollars reflect all private business activity that directly involves an SCPA port facility – either through the distribution of goods to customers (exports) or through the acquisition of supplies for production (imports). Table 6 summarizes all economic multiplier effects that arise in South Carolina from this initial \$34.5 billion in economic activity.

Table 6 – Statewide Economic Impact of SCPA Port Users

	Employment	Labor Income	Economic Output
Direct Impact	69,005	\$4,781,178,998	\$34,574,941,368
Indirect Impact	56,681	\$2,925,004,431	\$10,292,813,302
Induced Impact	43,958	\$1,648,548,305	\$5,574,574,652
Total Impact	169,644	\$9,354,731,734	\$50,442,329,322

The approximately \$34.5 billion in direct economic activity (economic output) is associated with 69,005 jobs in South Carolina and \$4.8 billion in labor income. It also leads to an additional \$10.3 billion in indirect effects, which is the estimated total dollar value of the increased demand for goods and services of in-state suppliers that result from the \$34.5 billion in direct output from the SCPA port users. This direct output also leads to another \$5.6 billion in induced effects, which represents the total increase in household spending that occurs across a wide variety of industries in South Carolina.

The combination of the direct, indirect, and induced impacts leads to a total impact of roughly \$50.4 billion on the state of South Carolina that is associated with all SCPA port users.

Table 6 also details the indirect and induced impacts for labor income and employment. The \$10.3 billion in indirect effects is associated with 56,681 additional employees working to fill the increased demand for industry related in-state suppliers throughout South Carolina. This indirect employment is also associated with \$2.9 billion in additional labor income. Another 43,958 employees are supported through the \$5.6 billion estimated induced impact. These are employees who work in industries that experience an increase in demand due to increased household spending. In sum, the total economic impact of the SCPA port users is approximately \$50.4 billion in total economic output, which corresponds to 169,644 jobs and \$9.4 billion in labor income.

Implications for Wage Growth in South Carolina

One of the most important components of South Carolina's manufacturing industry is its ability to generate and support *high wage* jobs that also experience *wage growth*. For example, the average wage in South Carolina's manufacturing industry was approximately \$49,958 in 2014, which was about 27.7 percent higher than the state average over the same time period (\$39,120). Similarly, the average wage growth in South Carolina's manufacturing industry was approximately 3.2 percent in 2014, which was higher than the 2.3 percent wage growth across all South Carolina jobs in 2014.⁶

Table 7 (next page) provides a breakdown of the industry composition of export and import activity in South Carolina that is facilitated by the SCPA.⁷ Notice that the majority of this activity is contained within the manufacturing industry. *Thus, the majority of the business activities supported by the SCPA are occurring within industries that are increasing both the average wage and the average wage growth of jobs in South Carolina.* This is a key finding and represents one of the most important contributions of the SCPA to the state of South Carolina. High-quality,

⁶ Source: U.S. Bureau of Labor Statistics

⁷ Regional definitions can be found in Table 8 – pg. 22

high-wage jobs are vital to the health of the state’s economy, and through its direct support of manufacturing, the SCPA is taking an active role in ensuring that the manufacturing sector continues to thrive.

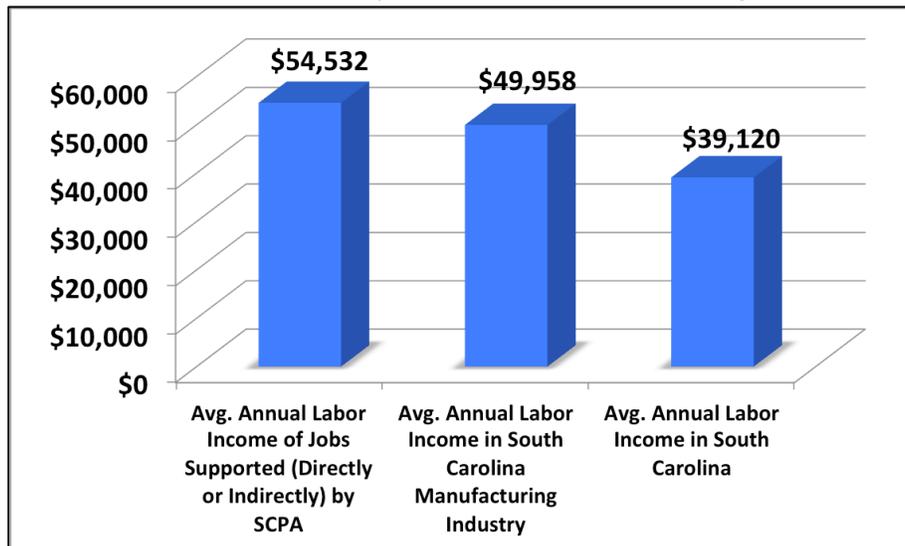
Table 7 – Total Export/Import Activity Across all SCPA Port Facilities by Industry

Note: Figure Estimates in Millions of Dollars

Industry	NAICS Code (2-Digit)	Midlands	Pee Dee	Upstate	Lowcountry
Agriculture, Forestry, Fishing, and Hunting	11	\$140.7	\$49.8	\$34.8	\$40.8
Mining	21	\$45.0	\$15.9	\$11.1	\$13.1
Manufacturing	31-33	\$7,595.1	\$3,546.8	\$15,311.6	\$3,539.5

This effect can be directly observed by examining the results presented in Tables 4 and 6 that show that the combined impact of all SCPA port operations and port users supports approximately \$10.2 billion in labor income for South Carolinians across 187,206 jobs. This implies that the average job supported, directly or indirectly, by the SCPA in South Carolina pays an annual labor income of \$54,532. This is approximately 39.4 percent higher than the average labor income in South Carolina and nearly 9.2 percent higher than the average labor income among all manufacturing jobs in South Carolina, as illustrated in Figure 4.

Figure 4 – Annual Labor Income Comparisons: SCPA, Manufacturing, and South Carolina

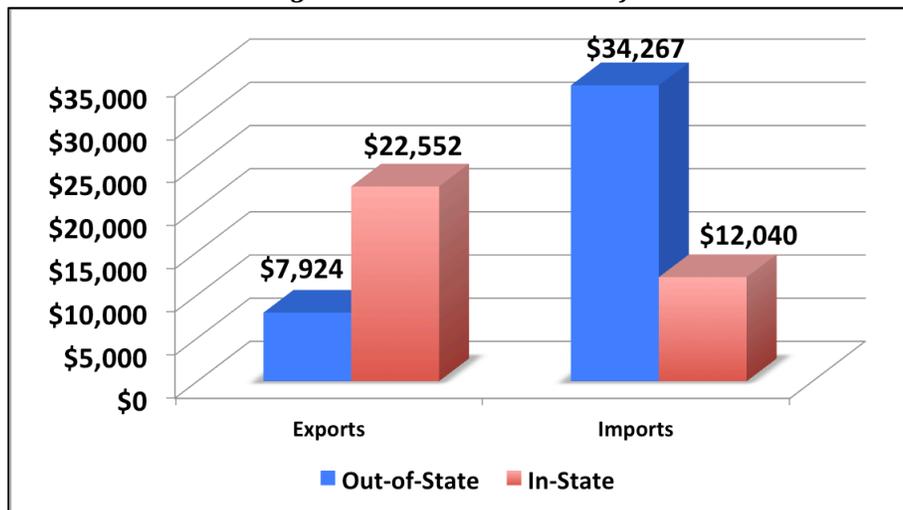


Economic Impacts Outside of South Carolina

As noted above in Table 5, approximately \$34.5 billion in statewide economic activity is directly supported by port facilities in South Carolina. These dollars reflect all statewide private business activity that directly involves an SCPA port facility – either through the distribution of goods to customers (exports) or through the acquisition of supplies for production (imports).

There is, however, additional economic activity outside the state that is also directly supported by South Carolina port facilities. These arise from out-of-state businesses that either ship goods (exports) or receive goods (imports) through a South Carolina port facility. For example, a manufacturing firm in nearby North Carolina may ship or receive cargo via ground transportation to the Port of Charleston. Thus, the South Carolina port facilities can also provide a competitive advantage to businesses in neighboring states, which will then factor into those businesses' location decisions. Figure 5 summarizes this out-of-state economic activity. In 2014, approximately \$42.2 billion in economic activity outside of South Carolina was directly supported by port facilities in South Carolina. This includes \$7.9 billion in exports and \$34.3 billion in imports. This can be compared to the \$34.5 billion worth of in-state economic activity directly supported by South Carolina port facilities.

Figure 5 – Total Direct Business Activity Supported by SCPA Facilities (2014)
Note: Figure Estimates in Millions of Dollars



SECTION V – REGIONAL RESULTS

Although the economic impact of SCPA extends across the entire state of South Carolina, this impact is not uniformly distributed. This section breaks out all estimates at the regional level. For the purposes of this report, South Carolina is divided into four regional economic development areas as outlined in Table 8 below.

Table 8 – Regional Definitions within South Carolina

Region	Included Counties
Midlands	Calhoun, Clarendon, Fairfield, Kershaw, Lee, Lexington, Newberry, Orangeburg, Richland, Saluda, Sumter, Aiken, Allendale, Bamberg, Barnwell, Edgefield
Pee Dee	Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, Williamsburg
Upstate	Abbeville, Anderson, Cherokee, Chester, Greenville, Greenwood, Lancaster, Laurens, McCormick, Oconee, Pickens, Spartanburg, Union, York
Lowcountry	Beaufort, Colleton, Hampton, Jasper, Berkeley, Charleston, Dorchester

Regional Results: The Midlands

The economic impacts of all activities associated with SCPA port operations and port users in the Midlands region of South Carolina are given in Table 9. The SCPA currently supports \$9.2 billion in direct economic output and approximately \$1.3 billion in labor income. When combined with the indirect and induced impacts, the total economic impact of the SCPA on the Midlands region is approximately \$13.6 billion in economic output, 47,998 total jobs, and over \$2.6 billion in labor income.

Table 9 – Total Economic Impact of SCPA: Midlands

	Employment	Labor Income	Economic Output
Direct Impact	19,828	\$1,342,850,674	\$9,224,796,379
Indirect Impact	15,866	\$813,141,169	\$2,812,460,616
Induced Impact	12,304	\$461,420,668	\$1,560,279,769
Total Impact	47,998	\$2,617,412,511	\$13,597,536,765

Regional Results: Pee Dee

The economic impacts of all activities associated with SCPA port operations and port users in the Pee Dee region of South Carolina are given in Table 10. The SCPA currently supports \$4.3 billion in direct economic output and approximately \$626.6

million in labor income. When combined with the indirect and induced impacts, the total economic impact of the SCPA on the Pee Dee region is approximately \$6.3 billion in economic output, 22,395 total jobs, and over \$1.2 billion in labor income.

Table 10 – Total Economic Impact of SCPA: Pee Dee

	Employment	Labor Income	Economic Output
Direct Impact	9,252	\$626,565,881	\$4,304,233,359
Indirect Impact	7,403	\$379,406,677	\$1,312,276,858
Induced Impact	5,741	\$215,296,051	\$728,016,962
Total Impact	22,395	\$1,221,268,609	\$6,344,527,178

Regional Results: The Upstate

The economic impacts of all activities associated with SCPA port operations and port users in the Upstate region of South Carolina are given in Table 11. The SCPA currently supports \$18.2 billion in direct economic output and approximately \$2.6 billion in labor income. When combined with the indirect and induced impacts, the total economic impact of the SCPA on the Upstate region is approximately \$26.8 billion in economic output, 94,533 total jobs, and over \$5.1 billion in labor income.

Table 11 – Total Economic Impact of SCPA: Upstate

	Employment	Labor Income	Economic Output
Direct Impact	39,052	\$2,644,796,228	\$18,168,592,486
Indirect Impact	31,248	\$1,601,512,914	\$5,539,249,726
Induced Impact	24,233	\$908,785,813	\$3,073,031,223
Total Impact	94,533	\$5,155,094,955	\$26,780,873,435

Regional Results: The Lowcountry

The economic impacts of all activities associated with SCPA port operations and port users in the Lowcountry region of South Carolina are given in Table 12. The SCPA currently supports \$4.3 billion in direct economic output and approximately \$623.3 million in labor income. When combined with the indirect and induced impacts, the total economic impact of the SCPA on the Lowcountry region is

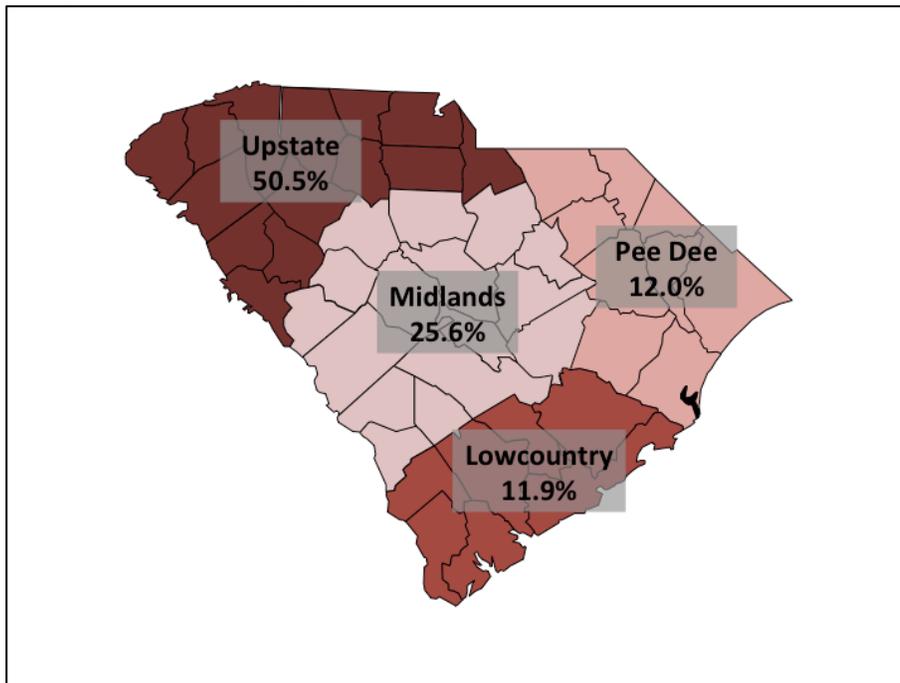
approximately \$6.3 billion in economic output, 22,278 total jobs, and over \$1.2 billion in labor income.

Table 12 – Total Economic Impact of SCPA: Lowcountry

	Employment	Labor Income	Economic Output
Direct Impact	9,203	\$623,266,236	\$4,281,566,243
Indirect Impact	7,364	\$377,408,632	\$1,305,366,096
Induced Impact	5,711	\$214,162,251	\$724,183,052
Total Impact	22,278	\$1,214,837,118	\$6,311,115,391

Figure 6 summarizes the total impact of the SCPA associated with each economic region of the state, with the darker shades of red denoting more heavily impacted regions. Notice that the largest impact comes from the Upstate, which is associated with \$26.8 billion in total output – or about half of all economic activity associated with the SCPA (50.5%).

Figure 6 – Percentage of Total SCPA Economic Output by Region



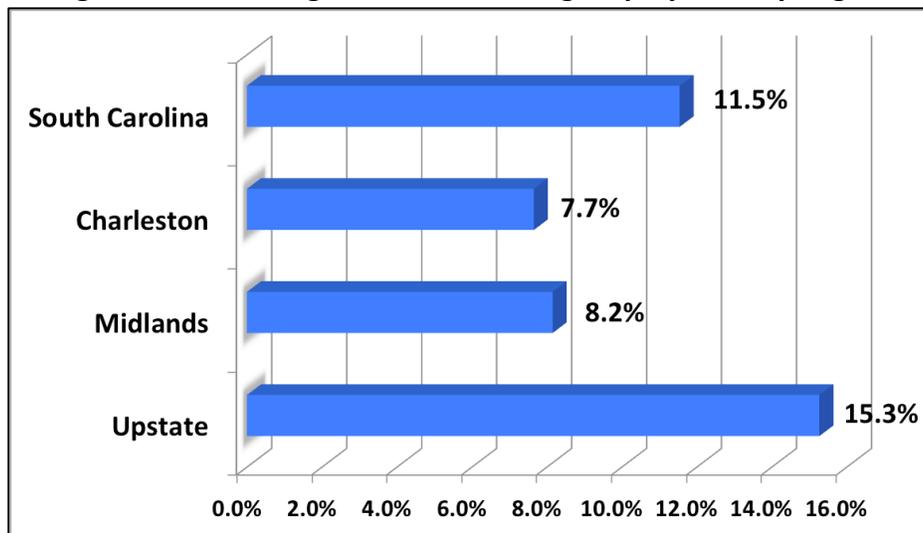
The reason that the impact of the SCSCPA is highly concentrated within the Upstate is not immediately obvious. For example, Figure 3 has shown SCPA port user

concentration by county, which reveals that port users are distributed throughout the state with some level of concentration within each major metropolitan region.

However, as has also been previously noted, the bulk of the cargo shipped through SCPA port facilities is concentrated within the manufacturing industry.

Manufacturing, in turn, is primarily concentrated in the Upstate. Figure 7 highlights this regional concentration of manufacturing employment in South Carolina. Notice that the Upstate is the only major metropolitan region to have a higher concentration of manufacturing employment than the state average (15.3% vs. 11.5%).

Figure 7 – Percentage of Manufacturing Employment by Region



Thus, although port users are located throughout South Carolina, the primary users are manufacturing-related firms that are located mainly in the Upstate. This, in turn, means that the SCPA has a relatively larger impact in the Upstate than in any other local region.

SECTION VI – CONTRIBUTIONS TO STATE TAX REVENUE

Another major impact of the SCPA comes from the increase in state tax revenue that results from the economic activity it supports. As summarized in Table 13, the economic impact of the SCPA that arises from the port operations and the port users totals approximately \$53.0 billion.

Historically, every additional dollar that is generated in economic activity (i.e., nominal gross state product) within South Carolina also generates 5.1 cents in new state tax revenue.⁸ By applying this figure to the economic activity generated by the SCPA, the tax revenue from this total volume of activity can be estimated.⁹ Table 13 displays these results, which show that the annual total estimated tax revenue that arises from the SCPA is approximately \$912.3 million.

Table 13 – State Tax Revenue Derived from Construction of the Palmetto Pipeline

Category	Dollar Value
Estimated Economic Output for South Carolina	\$53,034,583,114
Estimated Tax Revenue Generated for South Carolina	\$912,287,457

SECTION VII – CONCLUSION

Seaports have long served an important role in the economic development of South Carolina. As gateways for interstate and international commerce, seaports provide opportunities to attract and maintain export-oriented industries, which are becoming more significant for South Carolina’s economic growth in an increasingly global economy. These industries, in turn, are responsible for producing many of the state’s high-wage jobs and are responsible for much of the state’s wage growth over the past five years. This makes the port facilities owned and operated by the South

⁸ The historical relationship between South Carolina nominal gross state product and the South Carolina general funds revenue (as measured and tracked by the South Carolina Board of Economic Advisors) was estimated by the Division of Research using industry-standard time-series regression techniques.

⁹ Economic output represents the value of industry production and is therefore not synonymous with gross state product. As such, the dollar value of all intermediate inputs was subtracted from economic output before the 5.1-cent estimate was applied to estimate total tax revenue.

Carolina Ports Authority (SCPA) an essential component of South Carolina's economic engine.

This study has specifically quantified the total economic impact of the SCPA on the state of South Carolina and its local regions. The SCPA owns and operates public marine terminals at the Port of Charleston, the Port of Georgetown, and a separate Inland Port located in Greer, South Carolina. Between the operations of the ports themselves and the economic activity that arises directly from business transactions that require the use of these port facilities, the total annual economic impact of the SCPA on the state of South Carolina is approximately \$53.0 billion. About 50.5 percent of this impact is concentrated within the Upstate of South Carolina because the primary users of the SCPA port facilities are manufacturers. Although the Lowcountry's manufacturing base has risen substantially in recent years, as of 2015, South Carolina's manufacturing cluster is still predominantly based in the Upstate. This level of economic activity also translates into new tax revenue for the state of South Carolina. Specifically, the statewide economic activity that the SCPA supports generates an average of \$912.3 million in annual state tax revenue.

Approximately 187,206 jobs and \$10.2 billion in labor income for South Carolinians are supported through the activities of the SCPA. This translates into an average annual income of \$54,532 across all jobs supported (directly and indirectly) by the SCPA. This is approximately 39.4 percent higher than the average labor income in South Carolina. Firms in the manufacturing industry, which ship and receive the bulk of the cargo handled at the SCPA port facilities, not only support high-paying jobs, but also jobs that experience wage growth in excess of the state average (3.2% in 2014 vs. 2.3% across all jobs in South Carolina). High-quality, high-wage jobs are vital to the health of the state's economy, and through its direct support of manufacturing, the SCPA is taking an active role in ensuring that the manufacturing sector continues to thrive.



The economic benefits of the SCPA are clear. The SCPA port facilities help to meet the needs of export-oriented firms in South Carolina and provide a unique competitive advantage for the state of South Carolina as it continues to grow its global manufacturing footprint. Through its operations and through regularly facilitating the business activities of over 3,000 firms statewide, the SCPA represents an integral component of South Carolina's economic environment – a component that will only become more significant over time in the global economy of the 21st century.

APPENDIX I

Product Description	S.C. Exports (2014)	S.C. Imports (2014)
Vehicles, Except Railway Or Tramway, And Parts Etc	\$8,554,476,382	\$5,070,712,464
Nuclear Reactors, Boilers, Machinery Etc.; Parts	\$4,058,560,465	\$10,813,384,502
Aircraft, Spacecraft, And Parts Thereof	\$3,806,512,216	\$607,531,095
Plastics And Articles Thereof	\$1,960,456,581	\$1,379,909,667
Rubber And Articles Thereof	\$932,274,361	\$2,126,160,220
Electric Machinery Etc; Sound Equip; Tv Equip; Pts	\$850,293,266	\$2,865,924,044
Paper & Paperboard & Articles (inc Papr Pulp Artl)	\$700,357,545	\$349,990,661
Beverages, Spirits And Vinegar	\$620,565,578	\$240,581,639
Organic Chemicals	\$588,643,638	\$2,107,494,612
Meat And Edible Meat Offal	\$537,661,993	\$30,664,481
Miscellaneous Chemical Products	\$504,066,231	\$485,309,301
Wood Pulp Etc; Recovd (waste & Scrap) ppr & pprbd	\$467,590,196	\$33,650,111
Optic, Photo Etc, Medic Or Surgical Instrments Etc	\$421,984,264	\$1,200,388,788
Wood And Articles Of Wood; Wood Charcoal	\$409,797,877	\$286,492,746
Aluminum And Articles Thereof	\$406,644,963	\$350,713,849
Manmade Staple Fibers, Incl Yarns & Woven Fabrics	\$394,867,387	\$357,866,549
Tanning & Dye Ext Etc; Dye, Paint, Putty Etc; Inks	\$346,502,147	\$262,581,463
Essential Oils Etc; Perfumery, Cosmetic Etc Preps	\$309,220,710	\$877,001,750
Inorg Chem; Prec & Rare-earth Met & Radioact Compd	\$252,071,989	\$497,360,123
Copper And Articles Thereof	\$230,981,234	\$136,184,850
Manmade Filaments, Including Yarns & Woven Fabrics	\$218,122,815	\$359,936,632
Soap Etc; Waxes, Polish Etc; Candles; Dental Preps	\$213,871,152	\$154,863,770
Furniture; Bedding Etc; Lamps Nesoi Etc; Prefab Bd	\$206,906,219	\$984,748,836

Product Description	S.C. Exports (2014)	S.C. Imports (2014)
Articles Of Iron Or Steel	\$200,569,681	\$862,556,095
Cotton, Including Yarn And Woven Fabric Thereof	\$181,225,994	\$186,788,399
Food Industry Residues & Waste; Prep Animal Feed	\$176,972,839	\$45,442,840
Glass And Glassware	\$175,150,364	\$234,803,958
Miscellaneous Edible Preparations	\$170,056,173	\$26,050,957
Photographic Or Cinematographic Goods	\$148,255,506	\$251,954,093
Iron And Steel	\$139,153,049	\$913,919,492
Tobacco And Manufactured Tobacco Substitutes	\$134,625,272	\$8,255,194
Special Classification Provisions, Nesoi	\$133,357,736	\$302,774,900
Pharmaceutical Products	\$119,148,444	\$4,033,526,071
Albuminoidal Subst; Modified Starch; Glue; Enzymes	\$114,688,302	\$101,039,940
Nickel And Articles Thereof	\$110,096,648	\$63,273,443
Ships, Boats And Floating Structures	\$104,182,084	\$24,637,591
Wadding, Felt Etc; Sp Yarn; Twine, Ropes Etc.	\$100,085,006	\$176,989,863
Animal Or Vegetable Fats, Oils Etc. & Waxes	\$97,116,257	\$51,103,978
Carpets And Other Textile Floor Coverings	\$92,915,235	\$166,196,989
Toys, Games & Sport Equipment; Parts & Accessories	\$92,704,514	\$252,355,116
Base Metals Nesoi; Cermets; Articles Thereof	\$85,998,313	\$81,537,932
Aircraft, Spacecraft, and Parts Thereof	\$79,524,346	\$227,782,120
Salt; Sulfur; Earth & Stone; Lime & Cement Plaster	\$77,420,820	\$18,988,309
Impregnated Etc Text Fabrics; Tex Art For Industry	\$73,965,420	\$115,006,409
Arms And Ammunition; Parts And Accessories Thereof	\$69,224,097	\$255,531,778
Prep Cereal, Flour, Starch Or Milk; Bakers Wares	\$66,511,023	\$31,046,486
Miscellaneous Articles Of Base Metal	\$59,880,666	\$390,760,061
Oil Seeds Etc.; Misc Grain, Seed, Fruit, Plant Etc	\$59,213,237	\$4,925,018
Textile Art Nesoi; Needlecraft Sets; Worn Text Art	\$57,524,479	\$811,043,752

Product Description	S.C. Exports (2014)	S.C. Imports (2014)
Miscellaneous Manufactured Articles	\$55,687,220	\$223,923,819
Edible Fruit & Nuts; Citrus Fruit Or Melon Peel	\$49,917,012	\$17,211,275
Tools, Cutlery Etc. Of Base Metal & Parts Thereof	\$44,294,398	\$264,789,349
Edible Preparations Of Meat, Fish, Crustaceans Etc	\$43,965,548	\$30,990,183
Mineral Fuel, Oil Etc.; Bitumin Subst; Mineral Wax	\$38,399,510	\$493,734,400
Apparel Articles And Accessories, Knit Or Crochet	\$33,447,325	\$1,179,963,864
Art Of Stone, Plaster, Cement, Asbestos, Mica Etc.	\$32,334,466	\$148,405,838
Ceramic Products	\$29,386,450	\$90,028,677
Products Of Animal Origin, Nesoi	\$26,878,534	\$9,248,629
Musical Instruments; Parts And Accessories Thereof	\$23,786,211	\$10,468,934
Printed Books, Newspapers Etc; Manuscripts Etc	\$23,504,559	\$42,851,736
Railway Or Tramway Stock Etc; Traffic Signal Equip	\$22,127,663	\$39,849,736
Cocoa And Cocoa Preparations	\$20,115,608	\$11,947,829
Sugars And Sugar Confectionary	\$19,125,768	\$21,698,387
Knitted Or Crocheted Fabrics	\$15,926,957	\$26,346,964
Prep Vegetables, Fruit, Nuts Or Other Plant Parts	\$14,247,124	\$63,372,214
Raw Hides And Skins (no Furskins) And Leather	\$13,690,887	\$40,328,582
Leather Art; Saddlery Etc; Handbags Etc; Gut Art	\$13,549,682	\$81,705,834
Cereals	\$13,531,155	\$3,193,214
Apparel Articles And Accessories, Not Knit Etc.	\$12,648,418	\$861,281,552
Fertilizers	\$12,645,546	\$17,887,235
Nat Etc Pearls, Prec Etc Stones, Pr Met Etc; Coin	\$10,801,386	\$156,804,131
Spec Wov Fabrics; Tufted Fab; Lace; Tapestries Etc	\$9,896,376	\$41,855,856
Ores, Slag And Ash	\$7,738,554	\$12,176,722
Tin And Articles Thereof	\$6,001,544	\$1,618,301

Product Description	S.C. Exports (2014)	S.C. Imports (2014)
Footwear, Gaiters Etc. And Parts Thereof	\$5,539,232	\$623,787,716
Dairy Prods; Birds Eggs; Honey; Ed Animal Pr Nesoi	\$5,537,796	\$7,459,776
Zinc And Articles Thereof	\$4,796,566	\$29,697,271
Lac; Gums, Resins & Other Vegetable Sap & Extract	\$4,204,412	\$58,097,582
Explosives; Pyrotechnics; Matches; Pyro Alloys Etc	\$3,723,462	\$12,310,590
Lead And Articles Thereof	\$3,456,646	\$1,759,242
Clocks And Watches And Parts Thereof	\$3,248,316	\$4,595,507
Wool & Animal Hair, Including Yarn & Woven Fabric	\$2,850,662	\$28,236,386
Milling Products; Malt; Starch; Inulin; Wht Gluten	\$2,294,366	\$64,482,835
Headgear And Parts Thereof	\$2,071,861	\$19,965,278
Works Of Art, Collectors' Pieces And Antiques	\$1,857,090	\$9,273,646
Edible Vegetables & Certain Roots & Tubers	\$1,736,692	\$22,802,410
Coffee, Tea, Mate & Spices	\$1,533,441	\$414,942,474
Mfr Of Straw, Esparto Etc.; Basketware & Wickerwrk	\$1,512,654	\$45,771,282
Fish, Crustaceans & Aquatic Invertebrates	\$990,522	\$32,281,283
Vegetable Plaiting Materials & Products Nesoi	\$866,755	\$1,161,790
Live Trees, Plants, Bulbs Etc.; Cut Flowers Etc.	\$756,665	\$9,179,508
Cork And Articles Of Cork	\$587,914	\$5,447,902
Veg Text Fib Nesoi; Veg Fib & Paper Yns & Wov Fab	\$487,316	\$17,546,372
Prep Feathers, Down Etc; Artif Flowers; H Hair Art	\$348,794	\$2,035,712
Silk, Including Yarns And Woven Fabric Thereof	\$247,407	\$200,478
Umbrellas, Walking-sticks, Riding-crops Etc, Parts	\$232,661	\$12,127,249
Live Animals	\$204,599	\$0
Furskins And Artificial Fur; Manufactures Thereof	\$143,736	\$1,789,558