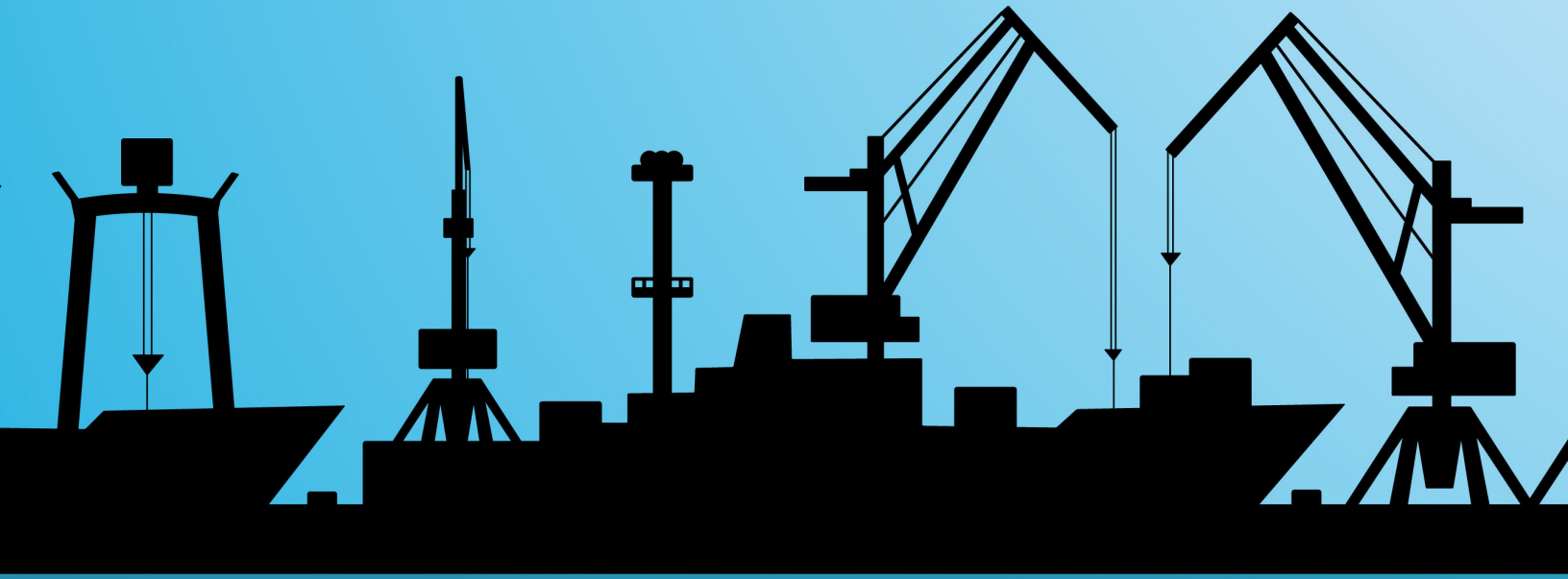


# THE STATEWIDE ECONOMIC IMPACTS OF FLORIDA SEAPORTS



Florida Seaport Transportation  
and Economic Development Council  
**DECEMBER 2016**

[www.flaports.org](http://www.flaports.org)



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## SUMMARY OF STATEWIDE ECONOMIC IMPACT ANALYSIS

Under the leadership of Gov. Rick Scott and the Florida Legislature, the state's seaports have seen billions invested through state, local and private funding since 2011. This has produced a ROI of nearly \$7 in state and local tax revenue for every \$1 of state investment. An additional \$3.7 billion has been planned for capital improvement projects over the next five years to ensure Florida remains a key player in the global marketplace.

The total economic value of the marine cargo and vessel activity at Florida seaports, including the revenue and value added at each stage of moving an export to the ports or an import from the marine terminals, is estimated at nearly \$117.6 billion, or 13.3% of the Gross Domestic Product of the state of Florida<sup>1</sup>. Of the \$117.6 billion, \$14.5 billion is the direct business revenue received by the firms directly dependent upon the seaports and providing maritime services and inland transportation services to the cargo handled at the maritime terminals and the vessels calling the ports. An additional \$5.4 billion of local re-spending and consumption expenditures were also generated. The balance, \$97.7 billion, represents the value of the output to the state of Florida that is created due to the cargo moving via each of the ports.

This includes the value added at each stage of producing an export cargo, as well as the value added at each stage of production for the firms using imported raw materials and intermediate products that flow via the ports and are consumed by industries within the state of Florida.

It is to be emphasized that the \$97.7 billion of economic value would not disappear from the state economy should the cargo move through another port, as it is the demand for the export and import cargo that drives the value of the cargo and generates the user economic value. If the cargo were to move to another out-of-state port the logistics cost of moving the imports and exports to and from Florida importers and exporters would increase, but the value would still be generated due to the demand for the export and import products. However, the \$14.5 billion of direct business revenue and the \$5.4 billion of re-spending and local consumption expenditures would be lost from the state economy. The related economic value demonstrates at a given point of time, the magnitude of the influence of Florida ports on the state's economy.

Since 2012, the total economic value of the Florida seaports increased from \$101.9 billion to \$117.6 billion, and total jobs supported and related to cargo and cruise activity grew by 217,664 within the state.

The last economic impact study conducted for Florida seaports was conducted by Martin Associates in 2012. Since this study, total tonnage grew by about 7.9 million tons and cruise passengers embarking at Florida seaports grew significantly. As a result of the growth in cargo and cruise activity, total jobs supported by this activity have grown by 217,664 since 2012.

In order to continue to grow the economic contribution of Florida ports, it is critical that the ports and state continue to invest in facility and infrastructure development and aggressively market the logistical cost advantage of the Florida ports' marine terminals, navigation channels, and surface transportation access to serve the state of Florida and the Southeastern region of the United States.

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<sup>1</sup> Gross Domestic Product for the state of Florida from U.S. Bureau of Economic Analysis, State GDP, 2015. The 2-15 GDP for Florida was measured at \$882.8 billion in 2015.

## CHAPTER I

# THE ECONOMIC IMPACT OF FLORIDA'S SEAPORTS

### Introduction

Martin Associates was retained by the Florida Seaport Transportation and Economic Development Council to measure the statewide economic impacts generated by maritime activity, both cargo and cruise, at seaports operating through Florida. Economic impacts generated at the cargo facilities include the impacts generated by containerized cargo (both dry and reefer), petroleum, steel products, forest products, automobiles and roll-on/roll-off (RO/RO) cargo, miscellaneous breakbulk cargo, dry bulk cargo (such as aggregates, phosphate, and minerals), petroleum and petroleum products, and other liquid bulk. In addition to the economic impacts generated by the cargo activity at the seaport terminals, Martin Associates has also quantified the economic impacts of the cruise industry at these ports.

This study focuses on impacts generated in fiscal year 2015/2016. Impacts are estimated in terms of jobs, personal earnings, business revenue, and state and local taxes. In addition to the baseline impact estimates, computer models specific to each port region and size of port have been prepared for use in evaluating specific investment projects, as well as the sensitivity of impacts to changes in tonnage, labor productivity, labor work rules, commodity mix, inland origins/destinations of commodities and vessel size.

The study employs methodology and definitions that have been used by Martin Associates to measure the economic impacts of seaport activity in more than 500 economic impact studies for ports in the United States and Canada, and at the leading airports in the United States

### Impact Definitions

The impacts are measured separately for the ports' cargo activity and cruise activity. The impacts are measured in terms of:

- Jobs [direct, induced, indirect and related shipper/consignee (related users)];
- Personal income;
- Business revenue; and
- State and local taxes.

#### Direct, Induced and Indirect jobs

**Direct jobs** are those that would not exist if activity at the Port's cargo and cruise facilities were to cease. Direct jobs created by maritime cargo activity at the Port's terminals are those jobs with the firms directly providing cargo handling and vessel services, including trucking companies, terminal operators and stevedores, members of the International Longshoremen's Association (ILA), stevedores and customhouse brokers, vessel agents, pilots and tug assist companies. Direct employees created by the cruise operations include the jobs with the firms providing the direct vessel services – chandlers, pilots, longshoremen, line handlers, local advertising firms, caterers, liquor wholesalers, linen companies, security firms, waste disposal firms, parking, local transportation -- as well as the firms providing services to the passengers on the vessels

-- hotels, taxi cabs, restaurants and tour packages. Also included are impacts generated at the individual airport due to the cruise passengers arriving via air.

**Induced jobs** are jobs created in the state by the purchases of goods and services by those *individuals* directly employed by each of the lines of business at each port. These jobs are based on the in-state purchase patterns of Florida-area residents. The induced jobs are jobs with grocery stores, restaurants, health care providers, retail stores, local housing/construction industry, and transportation services, as well as with wholesalers providing the goods to the retailers.

**Indirect jobs** are created throughout the state as the result of purchases for goods and services by the *firms* directly impacted by the port activity, including the tenants, terminal operators and the firms providing services to cargo – which includes containerized cargo, petroleum, general cargo, RO/RO, dry and liquid bulks, and cruise passenger operations. The indirect jobs are measured based on in-state purchase patterns of the directly dependent firms, and occur with such industries as utilities, office supplies, contract service providers, maintenance and repair and construction.

**Related shipper/consignee (related user) jobs** are jobs with shippers and consignees (exporters and importers) using the seaport terminals for shipment and receipt of cargo. The majority of the in-state shippers and consignees impacts involve the import and export of ocean containerized cargo.

### Other impacts

**Personal income impact** consists of wages and salaries received by those directly employed by port activity, and includes a re-spending impact which measures the personal consumption activity in the state by those directly employed as the result of cargo and cruise activity at the seaports. Indirect personal income measures the wages and salaries received by those indirectly employed.

**Business revenue** consists of total business receipts by firms providing services in support of the ocean cargo and cruise activity.

**In-state purchases** for goods and services made by the directly impacted firms are also measured. These purchases by the dependent firms create the indirect impacts.

**State and local taxes** include taxes paid by individuals as well as firms dependent upon the cargo and cruise activity at the seaports.

### Methodology

Within the past year, Martin Associates has developed detailed economic impact models for the following Florida ports: Canaveral, Everglades, Fernandina, Jacksonville, Manatee, Miami, Palm Beach, Panama City, Pensacola and Tampa.

These models are based on a 100% interview program with tenants of each of the ports as well as service providers to cargo and vessel activity at each port. In total, between 2012 and 2016, more than 2,500 firms that provide services to the cargo, vessel and cruise activity at these ports were interviewed. In addition, surveys of more than

3,000 cruise passengers and 1,800 crew were conducted by Martin Associates at the ports of Miami, Canaveral and Tampa. The data collected from the interviews were then used to develop a set of prototype regional models for the ports for which no specific impact models were developed -- St. Petersburg and Fort Pierce.

In addition, cruise impact models developed for Everglades, Miami, Canaveral, Tampa, Jacksonville and Palm Beach were modified to develop prototype models to estimate cruise activity at Key West. Cargo data provided by each port for containers, steel, forest products, auto, other breakbulk, dry bulk, petroleum, and other liquid bulk cargo were then used as inputs into the prototype models to estimate the economic impacts for the ports for which Martin Associates had not developed specific impact studies. Similarly, cruise passenger data for Key West were entered into the cruise prototype model to estimate the impacts of cruise operations at Key West.

The induced impacts are based on the current expenditure profile of residents in the state of Florida, as estimated by the U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey." This survey indicates the distribution of consumer expenditures over key consumption categories for residents of the communities in which the ports are located.

The consumption categories are:

- Housing
- Food at Restaurants
- Food at Home
- Entertainment
- Health Care
- Home Furnishings
- Transportation Equipment and Services

The estimated consumption expenditure generated as a result of the re-spending impact is distributed across these consumption categories. Associated with each consumption category is the relevant retail and wholesale industry. Jobs-to-sales ratios in each industry are then computed for the regions in which each port is located, and induced jobs are estimated for the relevant consumption categories. It is to be emphasized that induced jobs are only estimated at the retail and wholesale level, since these jobs are most likely generated in the state. Further levels of induced jobs are not estimated since it is not possible to defensibly identify geographically where the subsequent rounds of purchasing occur.

The "Consumer Expenditure Survey" does not include information to estimate the job impact with supporting business services, legal, social services, state and local governments, and educational services. To estimate this induced impact, a ratio of state of Florida employment in these key service industries to total state of Florida employment is developed. This ratio is then used with the direct and induced consumption jobs to estimate induced jobs with business/financial services, legal, educational, governmental and other social services.

The indirect impacts are estimated based on the local purchases by the directly dependent firms, combined with indirect jobs, income and revenue coefficients for the supplying industries in the state of Florida as developed for Martin Associates by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System.



## Economic Impact Models

The impacts are measured for FY 2015/2016, and computer models for both cargo and cruise operations have been developed to provide an estimate of the impacts of specific investment and development projects, and to test the sensitivity of the impacts to changes in economic conditions and facility utilization. It is to be emphasized that this study is designed to provide a framework which Florida can use in formulating and guiding the future development of port facilities within the State.

### Maritime Cargo Sensitivity

The cargo impact model is designed to test the sensitivity of impacts to changes in such factors as maritime tonnage levels, seaport productivity and work rules, new seaport facilities development, inland distribution patterns of ocean cargo, number of vessel calls and the introduction of new ocean carrier service. The cargo impact model can also be used to assess the impact of developing a parcel of land as a maritime terminal versus other non-cargo land uses. Finally, the maritime cargo impact model can be used to assess the economic benefits of increased maritime activity due to infrastructure development and the opportunity cost of not undertaking specific maritime investments such as dredging, new terminal development or warehouse development.

### Cruise Activity

The cruise service impact model provides a tool by which the state of Florida can evaluate changes in the types of cruises being offered, the size of vessels deployed, the number of passengers per cruise, the share of passengers staying overnight in hotels prior to or after the cruise, and the number of one day, overnight and multi-day (conventional) cruises. The cruise model can also be used to quantify the potential impact of new services, by size of vessel and type of cruise.

Finally, the cruise impact model along with the maritime cargo model can be used to evaluate the economic impact of a maritime terminal for use as a cruise terminal versus a cargo terminal.



## Summary of Results

Exhibit I-1 provides a summary of the economic impacts, by cargo and cruise, of Florida seaports.

### EXHIBIT I-1: ECONOMIC IMPACT OF CARGO AND CRUISE ACTIVITY ON THE STATE OF FLORIDA

	CARGO GENERATED	CRUISE GENERATED	2015/2016 TOTAL
<b>JOBS</b>			
DIRECT	41,116	20,676	61,792
INDUCED	32,468	11,685	44,153
INDIRECT	<u>23,561</u>	<u>10,175</u>	<u>33,736</u>
<b>TOTAL PORT SECTOR JOBS</b>	<b>97,145</b>	<b>42,536</b>	<b>139,681</b>
RELATED USER JOBS	<u>664,469</u>	<u>95,764</u>	<u>760,233</u>
<b>TOTAL JOBS</b>	<b>761,614</b>	<b>138,300</b>	<b>899,914</b>
<b>PERSONAL INCOME (THOUSANDS)</b>			
DIRECT	\$2,124,048	\$707,726	\$2,831,774
RE-SPENDING/LOCAL CONSUMPTION	\$4,176,302	\$1,212,375	\$5,388,677
INDIRECT	<u>\$1,069,983</u>	<u>\$338,461</u>	<u>\$1,408,444</u>
<b>TOTAL PORT SECTOR INCOME (THOUSANDS)</b>	<b>\$7,370,333</b>	<b>\$2,258,562</b>	<b>\$9,628,895</b>
RELATED USER INCOME	<u>\$26,287,830</u>	<u>\$4,172,388</u>	<u>\$30,460,218</u>
<b>TOTAL PERSONAL INCOME (THOUSANDS)</b>	<b>\$33,658,164</b>	<b>6,430,950</b>	<b>\$40,089,113</b>
<b>TOTAL OUTPUT (THOUSANDS)</b>			
<b>DIRECT PORT SECTOR REVENUE</b>	<b>\$7,286,359</b>	<b>\$7,167,274</b>	<b>\$14,453,633</b>
RELATED USER OUTPUT	<u>\$97,722,941</u>	<u>NA</u>	<u>\$97,722,941</u>
<b>TOTAL OUTPUT (THOUSANDS)</b>	<b>\$105,009,300</b>	<b>\$7,167,274</b>	<b>\$112,176,574</b>
<b>TOTAL PORT SECTOR LOCAL PURCHASES (THOUSANDS)</b>	<b>\$2,322,524</b>	<b>\$521,611</b>	<b>\$2,844,136</b>
<b>STATE AND LOCAL TAXES (THOUSANDS)</b>			
DIRECT, INDUCED AND INDIRECT TAXES	\$715,473	\$213,180	\$928,652
<b>TOTAL PORT SECTOR STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$715,473</b>	<b>\$213,180</b>	<b>\$928,652</b>
RELATED USER STATE AND LOCAL TAXES	<u>\$3,340,963</u>	<u>NA</u>	<u>\$3,340,963</u>
<b>TOTAL STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$4,056,436</b>	<b>\$213,180</b>	<b>\$4,269,616</b>

Totals may not add due to rounding

In fiscal year 2015/2016, marine cargo and cruise activity at seaports supported 899,914 total jobs in the state of Florida. Of these jobs, 61,792 jobs are directly created, while another 44,153 induced jobs are generated in the state as a result of local purchases by those directly employed by marine cargo and cruise activity. In addition, there are 33,736 indirect jobs supported by \$2.8 billion of local purchases. The cargo moving via Florida seaports supports 664,469 related user jobs with exporters and importers located throughout the state. The majority of these jobs are associated with the movement of containerized commodities at the ports. The Cruise Line International Association estimates an additional 95,764 related user jobs are supported by the cruise industry in Florida.

These numbers include cruise impact data generated by the Business Research and Economic Advisors for the Cruise Line International Association.

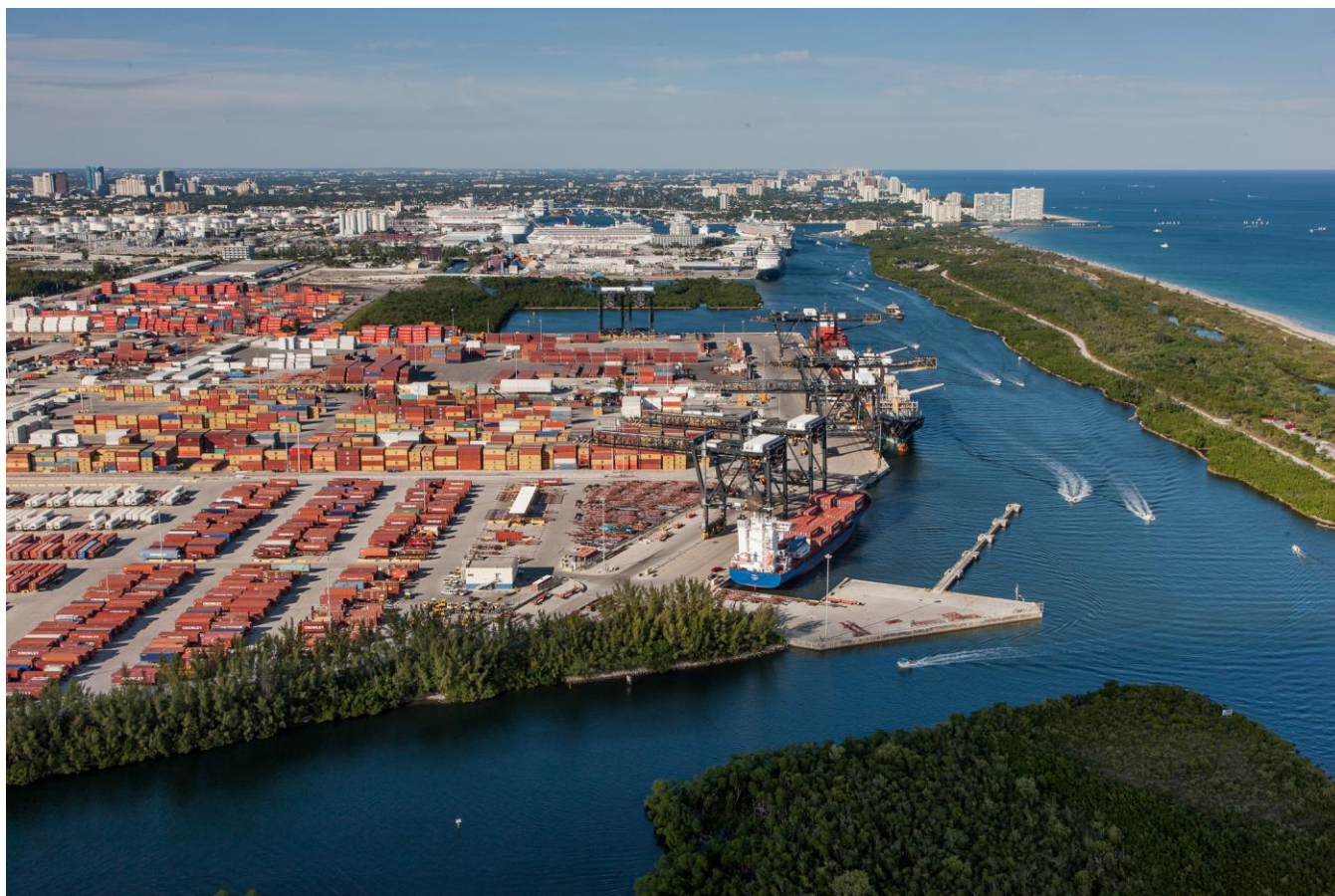


Approximately \$35.9 billion of wages and salaries and in-state consumption expenditures were generated by cargo and cruise activity in FY 2015/2016.

The 61,792 direct jobs received \$2.8 billion of direct wage and salary income. As a result of local purchases with this \$2.8 billion of direct wages and salaries, an additional \$5.4 billion of income and consumption expenditures were created in the state. It is this re-spending impact that supported the 44,153 induced jobs. The 33,736 indirect job holders received \$1.4 billion of wages and salaries. In total, \$40 billion of personal income was created as a result of port operations in Florida, including the \$30.4 billion generated by those employed with related users of the port.

State businesses received \$14.5 billion of sales revenue from providing services to the cargo and cruise activities. This does not include the value of cargo moving via the ports. The cargo activity at the ports created an additional \$97.7 billion of total economic output in the state, the majority of which was created by the movement of containers, and the in-state industries supporting these activities. It is to be emphasized that only the economic activity associated with the raw materials and finished products that move via the state's seaports is included. These cargo and cruise activities generated a total of \$112.2 billion in economic value to the state of Florida. As a result, a total of \$4.3 billion of state and local tax revenue was generated including \$3.3 billion by the related users throughout the state.

Local businesses and suppliers to the cargo and cruise industries in the state made \$2.8 billion of in-state purchases.



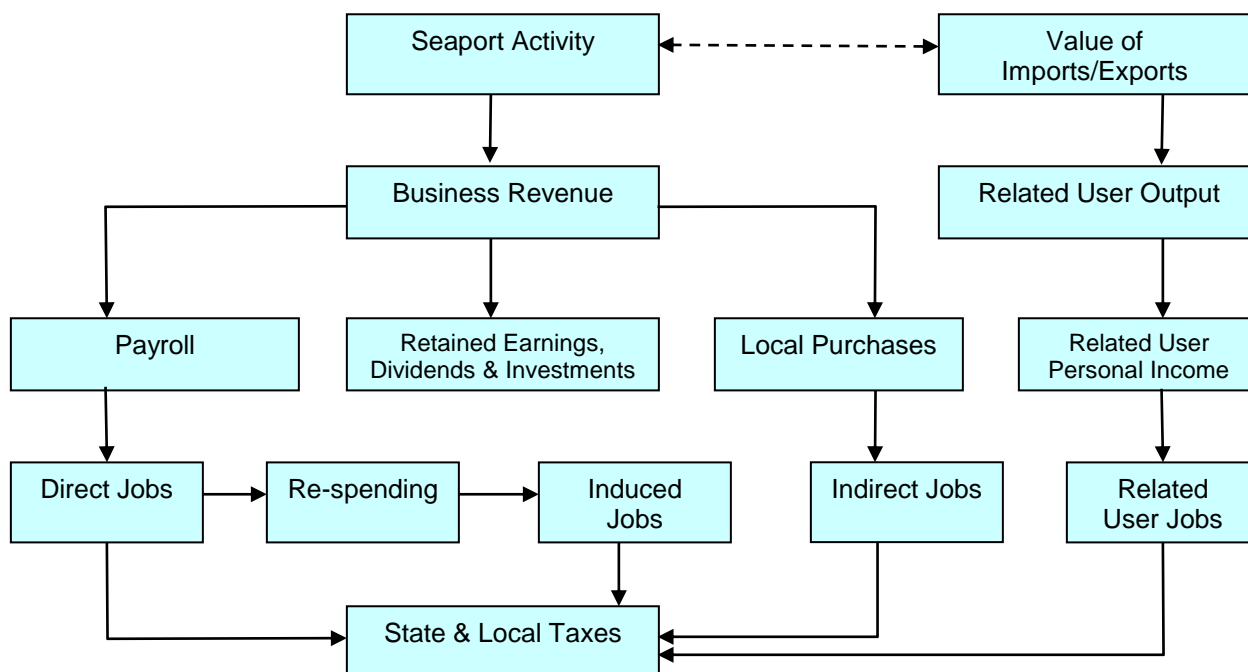
## CHAPTER II

# ECONOMIC IMPACTS OF MARITIME CARGO ACTIVITY

### Introduction

Waterborne cargo activity at a seaport contributes to the local and regional economy by generating business revenue to local and national firms providing vessel and cargo handling services at the seaport terminals. These firms, in turn, provide employment and income to individuals, and pay taxes to state and local governments. Exhibit II-1 shows how seaport activity generates impacts throughout the local, state and national economies. As this exhibit indicates, the impact of a seaport on the local, state or national economy cannot be reduced to a single number, but instead, the seaport activity creates several impacts. These are the revenue impact, employment impact, personal income impact, and tax impact. These impacts are non-additive. For example, the income impact is a part of the revenue impact, and adding these impact together would result in double counting. Exhibit II-1 shows graphically how activity at seaport marine terminals generates the impacts.

EXHIBIT II-1: FLOW OF ECONOMIC IMPACTS GENERATED BY MARITIME ACTIVITY



At the outset, activity at the ports generate business revenue for firms which provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and services, and to make federal, state and local tax payments. The remainder is used to pay stock holders, retire

debt, make investments, or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitively identified as remaining in the local economy are those portions paid out in salaries to local employees, for local purchases by individuals and businesses directly dependent on the seaport, in contributions to state and local taxes, in lease payments to the seaport agencies by tenants, and wharfage and dockage fees paid to the seaport authorities.

### Impact Structure

Economic impacts are created throughout various business sectors of the state and local economies. Specifically, four distinct economic sectors are impacted as a result of activity at the seaport terminals, as listed below:

- Surface Transportation Sector;
- Maritime Services Sector;
- Port Authority/Port Department of the County; and
- Related Shippers/Consignees Sector.

Within each sector, various participants are involved. Separate impacts are estimated for each of the participants. A discussion of each of the economic impact sectors is provided below, including a description of the major participants in each sector.

#### The Surface Transportation Sector

The surface transportation sector consists of both the railroad and trucking industries. The trucking firms and railroads are responsible for moving the various cargoes between the seaport terminals and the inland origins and destinations. Also included is the pipeline transportation of petroleum products received at a port.

#### The Maritime Services Sector

This sector consists of numerous firms and participants performing functions related to the following maritime services. A brief description of the major participants in each of these four categories is provided below:

- Maritime Cargo Transportation;
- Vessel Operations;
- Cargo Handling; and
- Federal, State and Local Government Agencies.

#### Maritime Cargo Transportation

Participants in this category are involved in arranging for inland and water transportation for export or import freight. The freight forwarder/customhouse broker is the major participant in this category. The freight forwarder/customhouse broker arranges for the freight to be delivered between the terminals and inland destinations, as well as the ocean transportation. This function performed by freight forwarders and customhouse brokers is most prevalent for containerized and general cargo commodities.

#### Vessel Operations

This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters the port; the agents arrange for pilot services and towing, for medical and dental care of the crew, for ship supplies as well as payment of various expenses including port charges. The agents are also responsible for

vessel documentation. In addition to the steamship agents arranging for vessel services, those providing the services include:

- Chandlers supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);
- Towing firms provide the tug service to guide the vessel to and from port;
- Pilots assist in navigating the vessels to and from each port's maritime terminals;
- Bunkering firms provide fuel to the vessels;
- Marine surveyors inspect the vessels and the cargo; and
- Shipyards/marine construction firms provide repairs (either emergency or scheduled) as well as marine pier construction and dredging.

### **Cargo Handling**

This category involves the physical handling of the cargo at the terminals between the land and the vessel. Included in this category are the following participants:

- Longshoremen & dockworkers include members of the International Longshoremen's Association (ILA), as well as non-ILA dockworkers (e.g. Teamsters Union) that are involved in the loading and unloading of cargo from the vessels, as well as handling the cargo prior to loading and after unloading;
- Stevedoring firms manage the longshoremen and cargo-handling activities. Stevedoring services at each port are most often provided by private stevedoring companies;
- Cargo terminal operators are stevedoring firms who operate the maritime terminals, track cargo movement and provide security where cargo is loaded and off-loaded, as well as the petroleum terminal and pipeline operators which includes petroleum tank farm operations;
- Warehouse operators store cargo after discharge or prior to loading and consolidate cargo units into shipment lots. In many cases the freight forwarders and consolidators are also involved in warehousing activity;
- FTZ Operators operate facilities in the some of the seaports that have Foreign Trade Zones.

### **Federal, State and Local Government Agencies**

This service sector involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at each of the seaports. Department of Homeland Security (DHS) [which includes Customs and Border Protection (CBP), U.S. Immigration and Customs Enforcement (ICE) and U.S. Coast Guard], U.S. Department of Labor, U.S. Department of Agriculture and the U.S. Army Corps of Engineers are involved.

### **Related Shipper/Consignees of Florida Seaports**

Related jobs consist of jobs with related shippers/consignees shipping and receiving cargo through the public cargo terminals at each of the state ports. The majority of these users are attributed to containerized cargo through the ports. Only the user industry activity that can be linked to the movement of cargo (either raw materials or finished products) through the seaports is considered in this related user impact.

### **Public Port Authority**

The port authority sector includes those individuals who are employees of the individual port authorities whose purpose is to oversee activity at the port's cargo and cruise terminals. The port authorities (which are in some cases parts of the counties such as Miami-Dade and Broward counties) provide basic infrastructure, establish usage rules and tariff rates, market the seaport facilities, and negotiate long-term agreements and leases with tenants.

## Commodities Included

A major use of an economic impact analysis is to provide a tool for port development planning. As a port grows, available land and other resources for port facilities become scarce, and decisions must be made about how to develop the land and utilize the resources in the most efficient manner. Various types of facility configurations are associated with different commodities. For example, containers, automobiles and RO/RO require a large amount of paved, open storage space, while certain types of breakbulk cargoes such as steel coil, pulp, paper and plywood require covered storage. Perishable commodities require temperature controlled warehouses and some dry bulk cargo requires covered storage and special dust removing equipment, while tank farms are needed to store liquid bulk cargo.

An understanding of the commodity's relative economic value in terms of employment and income to the local community, the cost of providing the facilities, and the relative demand for the different commodities is essential in making future port development plans.

Because of this need for understanding relative commodity impacts, economic impacts are estimated for the following commodities handled at the public cargo terminals within the state:

- Containers (dry and refrigerated);
- Steel Products;
- Forest Products Such as Paper, Pulp, Lumber/Plywood;
- Automobiles and RO/RO cargo;
- Dry Bulk;
- Petroleum; and
- Other Liquid Bulk.

It should be emphasized that commodity-specific impacts are not estimated for each of the economic sectors described in the last section. Specific impacts could not be allocated by individual commodities with any degree of accuracy for maritime construction, ship repair, or the state and federal government due to the fact that it is difficult to estimate the percentage of resources that are dedicated to one commodity over another. For example, maritime construction may occur at a terminal that is multi-use and cannot be attributed to a specific commodity. Similarly, law enforcement and security operations cannot be attributed to a single commodity.

## Cargo Employment Impacts

The employment generated by maritime cargo activity at the seaports within the state is estimated as follows:

- First, the total employment that is in some way related to the activities at cargo terminals is estimated;
- Second, the subset of total employment that is judged to be totally dependent (i.e., direct jobs) on port activity is analyzed as follows:
  - The direct job impact is estimated by detailed job category, i.e., trucking, ILA/dockworkers, freight forwarders/customhouse brokers/warehouse and consolidators, steamship agents, chandlers, surveyors;
  - The direct job impact is estimated for each of the key commodities/commodity groups;
  - Induced and indirect jobs are estimated;
  - Finally, jobs related to the maritime activity at the cargo terminals are described.



It is estimated that 761,614 jobs are directly or indirectly generated by port activities at the public marine cargo terminals within state of Florida. Of the 761,614 jobs:

- 41,116 jobs are directly generated by activities at the cargo terminals and if such activities should cease, these jobs would be discontinued over the short term.
- 32,468 jobs (induced jobs) are supported by the local purchases of the 41,116 individuals directly generated by port activity at the cargo terminals. An additional 23,561 indirect jobs were supported by \$2.3 billion of purchases in the state's economy by firms providing direct cargo handling and vessel services.
- 664,469 jobs are related to cargo exported and imported via the cargo terminals. These jobs are with related shippers/consignees using the public marine cargo terminals, and are mostly concentrated with jobs in the movement of containerized cargo through seaport terminals.

### Direct Maritime Cargo Job Impacts

In 2015, about 92.4 million tons of waterborne cargo moved via the public ports facilities in the state of Florida, including those facilities leased by private terminal operators from the seaport authorities. As a result of this activity, 41,116 full-time jobs were directly created<sup>2</sup>. In this section the jobs are analyzed in terms of distribution of job category, and distribution by commodity group, as developed in more detail below.



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<sup>2</sup> Jobs are measured in terms of full-time worker equivalents. If a worker is employed only 50 percent of the time by activity at public marine terminals in the state of Florida, then this worker is counted as .5 jobs.



## Direct Maritime Cargo Job Impacts by Job Category

Exhibit II-2 presents the distribution of the 41,116 direct jobs by type of job. The exhibit indicates that the majority of direct jobs are with the trucking sector moving cargo to and from the terminals, followed by directly dependent jobs with shippers/consignees (including employees of the phosphate mines supporting the export of fertilizer via the Port of Tampa), terminal operators, maritime service providers and members of the International Longshoremen's Association (ILA) and other dockworkers.

### EXHIBIT II-2: CARGO EMPLOYMENT IMPACTS BY SECTOR AND JOB CATEGORY

IMPACT CATEGORY	DIRECT JOBS 2015
<b><i>Surface Transportation</i></b>	
Rail	1,415
Truck	11,856
<b><i>Maritime Services</i></b>	
Terminal	4,126
ILA	2,426
Towing	441
Pilots	142
Agents	414
Maritime Services	3,349
Freight Forwarders	1,304
Warehouse	2,099
Government	1,431
Maritime Construction	2,211
Barge Operations	1,455
<b><i>Dependent Shippers/Tenants/FTZ Operations</i></b>	7,143
<b><i>Port Authorities</i></b>	1,304
<b>Total</b>	<b>41,116</b>

Totals may not add due to rounding



## Direct Maritime Cargo Job Impacts by Commodity

Most of the 41,116 jobs considered to be generated by port activity can be associated with the handling of specific commodities or commodity groups. Certain employment categories such as government employees and employees with maritime construction and ship repair cannot be identified with a specific commodity. As a result, employment in these groups (which totaled 7,966) was not allocated to commodity groups.

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### EXHIBIT II-3: DISTRIBUTION OF DIRECT CARGO JOB IMPACTS BY COMMODITY

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COMMODITY	DIRECT JOBS
CONTAINERS	13,801
DRY BULK	10,420
PETROLEUM	4,640
AUTOS/RO-RO	1,219
STEEL	1,071
OTHER BREAK BULK	867
FOREST PRODUCTS	642
LIQUID BULK	491
NOT ALLOCATED	7,966
<b>TOTAL</b>	<b>41,116</b>

The movement of containerized cargo creates the largest number of direct jobs, followed by the movement of dry bulk cargoes, reflecting the movement of phosphate and fertilizer (as well as the mines associated with the phosphate), and by the movement and distribution of finished petroleum products.

## Induced Maritime Cargo Job Impacts

The 41,116 directly employed individuals due to activity at the cargo terminals received wages and salaries, a part of which was used to purchase local goods and services such as food, housing, clothing and transportation services. As a result of these local purchases, 32,468 jobs in the regional economy were supported. The majority of the induced jobs are with local and regional private sector social services, business services, educational services and state and local government agencies, followed by jobs in the food and restaurant sector, and jobs in the construction and home furnishings sector.

## Indirect Maritime Cargo Job Impacts

In addition to the induced jobs generated by the purchases by directly employed individuals, the firms providing the direct services and employing the 41,116 direct jobs make local purchases for goods and services. These local purchases by the firms' dependent upon the cargo facilities generate additional local jobs -- indirect jobs. It is estimated that firms providing direct services to the marine cargo handled at the state's seaports made \$2.3 billion of in-state purchases in 2015. These direct local purchases created an additional 23,561 indirect jobs in the local economy.

### **Related User (Shipper/Consignee) Maritime Cargo Job Impacts**

It is estimated that about 664,469 jobs are supported in Florida with shippers/consignees that use the seaports. It is important to emphasize that the user jobs are supported by the cargo moving only via the seaports in 2015, and do not include jobs supported by cargo moving via other out of state ports (i.e. Savannah or West Coast ports) that are consumed or produced by in-state shippers/consignees and manufacturers.

To estimate the related user impact for containerized cargo, the average value per ton of each containerized import and export was estimated using USATrade Online. The employment to value of output coefficient for the retail sector related to the exported and imported containerized cargoes was then computed from the U.S. Bureau of Economic Analysis, Regional Input-Output Model for the state of Florida. To estimate the related containerized cargo jobs, the average value per ton of containerized cargo was multiplied by the tons handled at the port. The job coefficient was next multiplied by the value of the containerized cargo moving via the port to estimate the related jobs with exported and imported containerized cargo. The value of retail cargo was adjusted to reflect retail margins.

For breakbulk cargoes, the associated consuming and producing industries were identified with each commodity. For example, for imported iron and steel products, and lumber and plywood, relationships were developed to convert the dollar value of these imported materials into a dollar value of output in the key consuming industries, which include construction and metal fabrication industries. Relationships between the values of inputs to the value of outputs in these industries were estimated using data from the U.S. Bureau of Census, Census of Manufacturing and Census of Construction. These ratios were then used to convert the dollar value of the imported breakbulk and bulk cargoes, including petroleum into a dollar value of output in the consuming industries in the state. Using the respective jobs to value of output multipliers for these industries from the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II), the value of the breakbulk and bulk cargoes (i.e., steel products, and lumber/plywood, petroleum) moving via the seaports and remaining in (or produced in) the state of Florida was converted into related shipper/consignee jobs with these users and associated supporting industries within the state.

Finally, the direct, induced and indirect port sector job impacts associated with each of the cargoes for which related shipper/consignee jobs was estimated were subtracted from the total related jobs (by commodity and cargo type) to avoid double counting. This is because the related shipper/consignee jobs include job impacts at each stage of handling the imported and exported cargo, such as the port activity and the trucking and rail activity to move the cargo to and from each port and the induced and indirect jobs associated with the direct port activity.

### **Total Economic Output and Business Revenue Impacts**

The 92.4 million tons of cargo handled at the cargo terminals included in the study generated revenue for firms in each of the economic sectors. For example, revenue is received by the railroads, the trucking companies and pipelines within the surface transportation sector as a result of moving export cargo to the seaport terminals and distributing the imported commodities inland after receipt at the cargo terminals. The firms in the maritime services sector receive revenue from arranging for transportation services, cargo handling, providing services to vessels in port and repairs to vessels calling the port facilities.

The port authorities receive revenue from terminal leases and port charges such as wharfage and dockage assessed on cargo and vessels. In addition, revenue is received by shippers/consignees from the sales of cargo shipped or

received via the seaport cargo terminals and from the sales of products made with raw materials received through the terminals. Since this chapter is concerned with the revenue generated from providing maritime services, the shipper/consignee revenue (i.e., the value of the cargo shipped or received through the seaport terminals, as well as the value of the products produced by the port-dependent shippers/consignees) will be excluded from the remaining discussion.

The revenue generated by port activity consists of many components. For example, gross revenue is used to pay employee salaries and taxes, it is distributed to stockholders of the companies providing the vessel and cargo handling services, and it is used for the purchases of equipment and maintenance services. Of these components, only three can be isolated geographically with any degree of accuracy. These are the personal income component of revenue, which can be traced to geographic locations based on the residence of those receiving the income, the payment of state and local taxes, and the in-state purchases made by firms dependent upon the maritime activity.

The balance of the revenue is distributed in the form of payments to firms located outside the state of Florida providing goods and services to the economic sectors and for the distribution of company profits to shareholders. Many of these firms and owners are located outside of the state of Florida and, thus, it is difficult to trace the ultimate location of the distributed revenue (other than personal income, taxes and local purchases). The value of output created by in-state related shippers/consignees of the ports is attributed to the state of Florida, and the local purchases from other firms within the state are also included in this user output measure, as defined by the in-state output coefficients (for the user industries) developed from the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II).

### Output Impact

The output impact is a measure of the total economic activity in the state that is generated by the cargo moving via public seaports. In 2015, maritime cargo activity at the Florida seaports including the revenue and value added at each stage of moving an export to the ports or an import from the marine terminals is estimated at nearly \$117.6 billion, or 13.3% of the Gross Domestic Product of the state of Florida. Of the \$117.6 billion \$14.5 billion is the direct business revenue received by the firms directly dependent upon the seaports and providing maritime services and inland transportation services to the cargo handled at the maritime terminals and the vessels calling the seaports. \$5.4 billion of local re-spending and consumption expenditures were generated and the balance, \$97.7 billion, represents the value of the output to the state of Florida that is created due to the cargo moving via each of the seaports. This includes the value added at each stage of producing, and exporting cargo, as well as the value added at each stage of production for the firms using imported raw materials and intermediate products that flow via the ports and are consumed by industries within the state of Florida. This value excludes the direct, induced and indirect impacts estimated for the cargo moving through Florida ports.

### Personal Income Impact

The income impact is estimated by multiplying the average annual earnings (excluding benefits) of each port participant, i.e., truckers, steamship agents, pilots, towing firm employees, longshoremen, warehousemen, etc., by the corresponding number of direct jobs in each category. The individual annual earnings in each category multiplied by the corresponding job impact resulted in \$2.1 billion in personal wage and salary earnings.

It is important to emphasize that the average annual earnings of a port-dependent job is about \$51,660. These relatively high paying jobs will have a much greater economic impact in the local economy through stimulating induced jobs than will a job paying lower wages. This salary compares to an annual average salary for all Florida workers of \$42,860<sup>3</sup>.

The impact of the re-spending of this direct income for local purchases is estimated using a personal earnings multiplier. The personal earnings multiplier is based on data supplied by the U.S. Bureau of Economic Analysis (BEA), Regional Input-Output Modeling System (RIMS II). The BEA estimates that for every one dollar earned by direct employees generated by activity at the cargo terminals, an additional \$1.9662 of personal income and local consumption expenditures would be created as a result of re-spending the income for purchases of goods and services produced locally. Hence, a personal earnings multiplier of 2.9662 was used to estimate the incremental income and consumption impact of nearly \$4.2 billion. The total income, re-spending and consumption impact, inclusive of the re-spending effect is \$7.4 billion. This additional re-spending of the direct income generates the 32,468 induced job impacts.

The 23,561 indirect job holders earned \$1.1 billion in indirect wages and salaries. The 664,469 related shipper/consignees of the cargo moving via the seaports received about \$26.3 billion of personal income. Therefore, the total personal income impact and consumption impact created by ocean cargo activity is estimated at nearly at \$33.7 billion.

### Tax Impacts

State and local tax impacts are based on per employee tax burdens which are developed at the county, local and state jurisdictional levels. These tax per employee burdens are essentially tax indices that are used to allocate total taxes at each level of government to economic activity generated by the cargo terminals. To estimate the per employee tax indices, total taxes received at each governmental level in Florida was developed from the Tax Foundation, which reports total state and local taxes from all sources as a percent of total personal income.

In addition, an estimate was developed to estimate the corporate tax impact on the net revenue of the businesses supplying services to the cargo and vessels handled at the Florida seaports. The business tax impacts are based on data developed from the U.S. Bureau of Census, State and Local Government Finances by Level of Government. Cargo activity generated \$715.5 million of state, county and local taxes. As a result of the economic activity created by the related shipper/consignees, an additional \$3.3 billion of state and local taxes were generated. The state of Florida receives approximately 53% of the tax revenues, while the local governments received 47% of the tax impact.

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<sup>3</sup> Average annual wages for all occupations in the state of Florida in 2015 is \$42,860, as estimated by the U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2015.

## CHAPTER III

# ECONOMIC IMPACTS OF CRUISE SERVICE IN FLORIDA

In FY 2015/2016, about more than 15 million passengers moved through Florida seaports. These passengers consist of passengers embarking and disembarking on homeport calls, in transit calls, as well as one day sails. The key difference between an in-transit call and a homeport call is the fact that a vessel homeporting will take on passengers and supplies at the ports, while a vessel making an intermediate in-transit call typically does not take on or discharge passengers. In addition, the vessel does not take on supplies from local chandlers and caterers or use local services such as advertising, maintenance and repair, and linen services. Hence, a call by a homeported vessel will generate a greater economic impact than an in-transit call. Also, included in the passenger and vessel call counts are daily and overnight cruises to the Bahamas as well as daily gaming sails.

To measure the economic impact of the cruise service, Martin Associates developed cruise impact models for Everglades, Miami, Canaveral, Tampa, Palm Beach, Key West, and Jacksonville. These models include homeport calls, in-transit calls as well as day cruises. The models can be used to test the sensitivity of the impacts to changes in the percent of passengers flying into the port city versus the percent of passengers driving to the port, the share of passengers staying in hotels prior to and after the cruise, the local expenditures by passengers while in hotels either before or after the cruise, and the local purchases by the cruise lines for food, liquor, and other supplies and services. The impact of changes in the mix of the size of vessels and the number of cruises by size of vessel and itinerary can also be evaluated using the model. These models were then used to develop a prototype model to estimate the economic impacts of cruise operations at Key West, which were not estimated using a port specific model.

In addition, as part of the individual cruise impact studies for the ports of Miami, Canaveral and Tampa, Martin Associates conducted passenger surveys of more than 3,000 passengers embarking at these ports as well as 1,800 ships' crew between 2013 and 2016. These passenger and crew surveys were then used to develop the passenger profiles such as share of fly-in, percent staying overnight, and length of stay pre-and post-cruise.

### Impact Structure

Cruise service related to the homeporting of a vessel contributes to the local and regional economies by providing employment and income to individuals, tax revenues to local and state governments, and revenue to businesses engaged in providing operational services and supplies to the vessels and passengers.

The flow of cruise industry-generated economic impacts throughout an economy creates four separate and non-additive types of impacts.

These four types of impacts are:

**Employment Impact** represents the number of full-time equivalent jobs generated by cruise activity at the Florida ports. This consists of jobs directly generated by the homeporting of cruise vessels as well as induced jobs, or jobs created in the state due to the purchase of goods and services by those individuals directly dependent upon cruise activity.



**Income Impact** is the level of earnings associated with the jobs created by cruise activity, and adjusted to reflect re-spending throughout the state's economy.

**Revenue Impact** is the sales generated by firms engaged in supplying services and materials to the vessels while in port, as well as firms in the state visitor industry that supply services to cruise passengers staying in hotels before and after the cruise. The value of the cruise tickets is not included as a revenue impact except for those cruise services based in a specific port that provides the daily/non-conventional cruises.

**Tax Impacts** includes the state and local tax revenues generated by cruise activity. These are taxes paid by individuals directly dependent upon the cruise activity.

## Impact of Homeport Calls

Homeport activity at a port affects two sectors of the local and regional economy: the Maritime Service Sector; and the Visitor Industry Sector. Separate impacts are estimated for each of the various economic categories supplying goods and services to the cruise ships and passengers. A discussion of each of the impact categories is provided below.

The typical expenditure profile of a cruise line while in port provides an understanding of the types of firms involved in providing goods and services to the vessel and its passengers. These expenditure categories are:

- **Food and Beverage** includes wholesale food and liquor distributors. It is to be emphasized that in some cases the non-perishable food brought on board at the beginning of a cruise is not necessarily purchased locally, but based on contractual relationships and is trucked in from out of the area. Similarly, in some cases, liquor is purchased from in-bound warehouses, and not from local distributors. Interviews with the cruise operators identified the amount spent locally.
- **Logo Items** are typically purchased under contract and are trucked into the port of embarkation. Therefore, no local impact is estimated.
- **Flowers** include local wholesale flower distributors that supply flowers for each cruise.
- **Public Relations and Advertising** include contracts usually developed with local advertising firms to promote the cruise. This is especially the case for the local cruises providing daily cruise services.
- **Parking** includes local parking management companies provide parking services for the passengers.
- **Taxis/buses** are local taxis and buses provide transportation between the airport and the ship or between the hotel and the ship for air/sea passengers.
- **Security** includes security services hired while the ship is in port.
- **Linen services** are contracts developed with local laundries for linen and laundry services.
- **Pilots** are state licensed and locally based operators who guide the cruise ships into the terminal.
- **Tugs** are tug services required for certain cruise ships to assist in docking and undocking. However, most cruise vessels require minimal, if any, tug assists.
- **Stevedoring** is required in loading and unloading baggage and ship stores.
- **Line handling** includes securing and un-securing the vessel to the dock.
- **Local and Regional Travel Agencies** includes local travel agencies who receive a commission from ticket sales to area residents.

- Waste Disposal includes solid waste and other refuse that cannot be discharged at sea will be disposed by local refuse collectors.
- Bunkers includes fuel that will be purchased from local bunkering companies.
- Water includes water purchased for cruises. Most cruise ships manufacture water at sea, but will still purchase some water locally prior to departure.

In addition to the impacts generated by direct vessel purchases, a percentage of the multi-day cruise passengers stay in hotels either before or after the cruise, which is part of the Visitor Industry expenditure category. These individuals typically purchase incidental retail items before or after the cruise and eat in local hotel restaurants while in the port area. Also, these air/sea passengers will take cabs/buses from the airport to the hotel or ship, as well as taxis between the hotel and the ship and throughout the city. In addition to passengers impacting the local visitor industry, the ship's crew will also impact the local industry. For example, the crew will likely purchase personal incidentals while in port. Also, a portion of the crew could be rotated on each sailing. The new crew may stay in a local hotel upon arrival, while the departing crew may also stay in a hotel prior to leaving the area. The crews of the daily sails are treated as based in the port city. The data collected from the passenger surveys and crew surveys were used to calibrate the cruise impact models, by length of cruise and size of ship.

The passengers arriving via the airports serving the ports also generate impacts on site at the airport, including jobs with airlines (ticket agents, baggage, concessions, taxis, security). To estimate the impact on the airport, Martin Associates used average impact ratios developed from an airport impact study conducted for Miami International Airport.

The economic impact analysis of cruise service at Everglades, Miami, Canaveral, Palm Beach, Tampa, and Jacksonville are based on telephone surveys of cruise lines calling the ports. The interviews of cruise lines focused on typical expenditure profiles of a vessel while in port as well as the percent of crew that are rotated on/off during each sailing. Incidental expenses by crew while in port were also estimated from the interviews as well as in-house data. The percent of passengers that are air/sea versus drive-in, the percent of visitor versus local passengers, and the share of passengers spending a pre/post night in the port city were developed from the more than 3,000 passenger surveys and 1,800 crew surveys conducted by Martin Associates at Miami, Canaveral and Tampa.

The induced impacts are based on the current expenditure profile of residents in each port area, as estimated by the U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey." The indirect impacts are estimated based on the local purchases by the directly dependent firms, combined with indirect jobs, income and revenue coefficients for the supplying industries in the state of Florida as developed for Martin Associates by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System.

## Cruise Service Impact Model

In order to assess the economic impacts of potential cruise business at the seaports in Florida, Martin Associates developed a spreadsheet framework, which can be used to assess the impacts of changes in such factors as:

- Number of cruise vessel calls;
- Number of passengers;
- Passenger characteristics:
  - Local expenditures;
  - Local residents versus tourists;
  - Length of pre/post night stay in the area in which the port is located;
- Size of crew;
- Length of cruise; and
- Size of vessel

## Economic Impacts of Cruise Service on Florida

Exhibit III-1 reflects the economic impact of the more than 15 million cruise passengers using Florida ports.

### EXHIBIT III-1: ECONOMIC IMPACT OF CRUISE OPERATIONS AT FLORIDA SEAPORTS

2015/2016 CRUISE GENERATED	
<b>JOBS</b>	
RELATED USER	95,764
DIRECT	20,676
INDUCED	11,685
INDIRECT	10,175
<b>TOTAL JOBS</b>	<b>138,300</b>
<b>PERSONAL INCOME (THOUSANDS)</b>	
DIRECT	\$707,726
RE-SPENDING/LOCAL CONSUMPTION	\$1,212,375
INDIRECT	\$338,461
<b>TOTAL PERSONAL INCOME (THOUSANDS)</b>	<b>\$2,258,562</b>
<b>DIRECT PORT SECTOR REVENUE (THOUSANDS)</b>	<b>\$7,167,274</b>
<b>TOTAL PORT SECTOR LOCAL PURCHASES (THOUSANDS)</b>	<b>\$521,611</b>
<b>TOTAL PORT SECTOR STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$213,180</b>

These numbers include cruise impact data generated by the Business Research and Economic Advisors for the Cruise Line International Association.

## Job and Personal Income Impacts

The cruise activity at seaports in Florida supported 138,300 total jobs in the state. Of these total jobs, 20,676 were direct jobs, 11,685 jobs were supported as the result of the purchases of the 20,676 direct jobs holders. Another 10,175 indirect jobs were supported by state industries that supply services and goods to the tourism industry catering to the passengers as well as to the chandlers and other firms supplying services and goods to the vessels while in port. The Cruise Line International Association estimates an additional 95,764 related user jobs supported by the cruise industry in Florida.

The 20,676 direct job holders received \$707.7 million of direct wages and salaries. As the result of the purchases made locally with this income, (which supported the 11,685 induced jobs in the State) an additional \$1.2 billion of local income and consumption expenditures were created in the State. The 10,175 indirectly employed workers were paid \$338.5 million, for a total wage and salary income impact of nearly \$2.3 billion, including the consumption impact.

## Business and Tax Revenues

Local businesses supplying food, beverages, and services to the cruise lines and the services supplied at the airports handling the cruise passengers received \$7.2 billion of business revenue. In order to support the services and goods supplied to the cruise lines by these firms, another \$521.6 million of local purchases in the state were made by those firms providing direct services to the cruise lines. These local purchases supported the 10,175 indirect jobs in the local economy.

Finally, as the result of cruise activity at seaports within the state during the FY 2015/2016 cruise season, \$213.2 million of state and local tax revenue was collected.



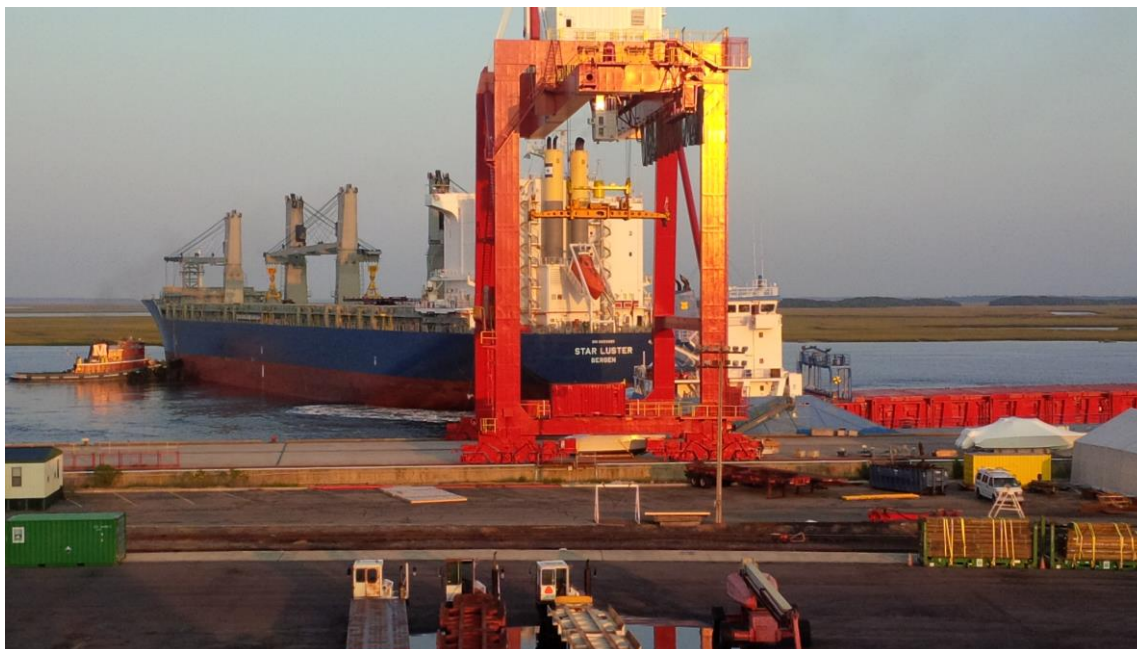


## CHAPTER IV

# CHANGES SINCE 2012

The last economic impact study of the Florida seaports was completed by Martin Associates in 2012. Since the last study, several structural and operational changes have occurred. With respect to the structural changes, the personal income multiplier for waterborne transportation, as estimated for the state of Florida by the U.S. Bureau of Economic Analysis, has fallen from 3.27 to 2.96. This reduction in the personal income multiplier reflects an increase in the savings rate per dollar of income earned (or conversely a decline in consumption per dollar), which has occurred since the 2008 recession. In addition, the decline in the personal income multiplier reflects the increased “leakage” of consumption out of the state of Florida. It also reflects the growth of personal purchases made via the internet. This reduction in the personal income multiplier results in a lower re-spending impact and personal consumption impact per dollar of personal income, in turn reducing the induced job impact for a dollar of income earned.

Secondly, the results of a new Economic Census for 2012 were released by the U.S. Bureau of Census. In the previous study, the 2007 Economic Census was used to estimate induced impacts. The jobs-to-sales ratios in the updated Economic Census data are smaller than those estimated in the 2007 Economic Census. The lower jobs per sales ratios, which are used to translate the local purchases by the direct employees into induced jobs, add to the decline in induced jobs resulting from the lower income multiplier. The reduced jobs to sales ratios in the Economic Census reflect both an increase in overall productivity in the U.S., as well as the jobless recovery from the recession of 2008 and 2009. As well documented in economic literature, more jobs have been filled with part time employees and some jobs have not been refilled<sup>4</sup>. As a result of these structural shifts, the induced job impacts per dollar of income are lower in this study compared to the 2008 economic impacts.



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<sup>4</sup> [www.economist.com/blogs/freeexchange/2012/08/americas-jobless-recovery](http://www.economist.com/blogs/freeexchange/2012/08/americas-jobless-recovery)

## Growth in Cargo-Generated Impacts

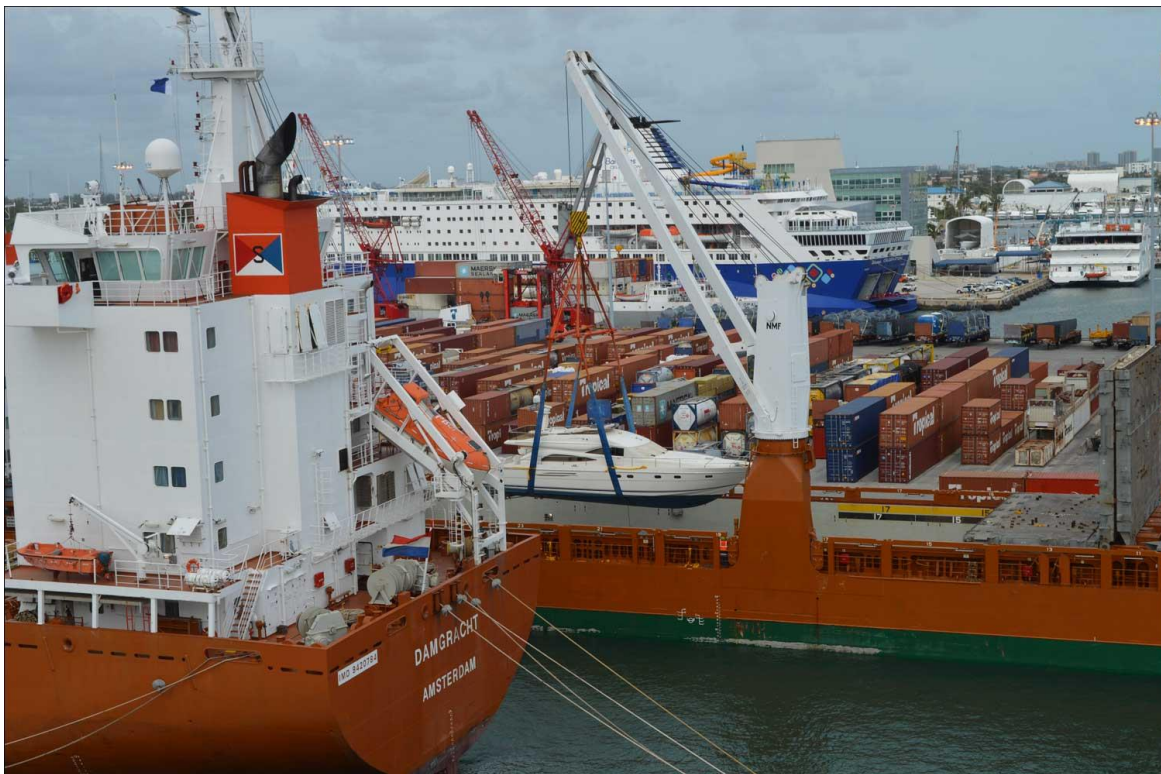
From an operational perspective, total tonnage handled by the Florida seaports has grown by about 7.9 million tons, for a 3.0% annual growth rate. The overall growth in tonnage was driven by the growth in dry bulk commodities, containerized cargo, petroleum, automobiles, and steel products. This growth in cargo resulted in a significant gain in economic impacts generated by cargo activity.

Exhibit IV-1 presents the changes in tonnages between 2012 and 2016.

### EXHIBIT IV-1: CHANGE IN TONNAGE HANDLED AT FLORIDA'S SEAPORTS, 2012 - 2016

COMMODITY	2015 TONS (1,000)	2012 TONS (1,000)	CHANGE TONS (1,000)
CONTAINERS	25,627	23,291	2,336
FOREST PRODUCTS	1,922	2,729	-807
STEEL	1,545	609	936
OTHER BREAK BULK	1,129	768	361
AUTOS/RO-RO	1,371	375	996
DRY BULK	24,413	21,681	2,732
LIQUID BULK	971	1,169	-198
PETROLEUM	35,381	33,866	1,515
<b>TOTAL</b>	<b>92,360</b>	<b>84,488</b>	<b>7,872</b>

Source: Port tonnages supplied by each of Florida's seaports





This growth in cargo resulted in a significant gain in economic impacts generated by cargo activity, as shown in Exhibit IV-2.

## EXHIBIT IV-2: CHANGES IN CARGO DRIVEN ECONOMIC IMPACTS AT FLORIDA SEAPORTS

	CARGO GENERATED 2015	CARGO GENERATED 2012	CHANGE IN CARGO IMPACTS
<b>JOBS</b>			
DIRECT	41,116	37,771	3,345
INDUCED	32,468	35,752	-3,284
INDIRECT	<u>23,561</u>	<u>21,800</u>	<u>1,761</u>
<b>TOTAL PORT SECTOR JOBS</b>	<b>97,145</b>	<b>95,323</b>	<b>1,822</b>
RELATED USER JOBS	664,469	455,926	208,543
<b>TOTAL JOBS</b>	<b>761,614</b>	<b>551,249</b>	<b>210,365</b>
<b>PERSONAL INCOME (THOUSANDS)</b>			
DIRECT	\$2,124,048	\$1,693,145	\$430,903
RE-SPENDING/LOCAL CONSUMPTION	\$4,176,302	\$3,983,057	\$193,245
INDIRECT	<u>\$1,069,983</u>	<u>\$1,037,541</u>	<u>\$32,443</u>
<b>TOTAL PORT SECTOR INCOME (THOUSANDS)</b>	<b>\$7,370,333</b>	<b>\$6,713,743</b>	<b>\$656,591</b>
RELATED USER INCOME	<u>\$26,287,830</u>	<u>\$17,165,293</u>	<u>\$9,122,537</u>
<b>TOTAL PERSONAL INCOME (THOUSANDS)</b>	<b>\$33,658,164</b>	<b>\$23,879,036</b>	<b>\$9,779,128</b>
<b>TOTAL OUTPUT (THOUSANDS)</b>			
<b>DIRECT PORT SECTOR REVENUE</b>	\$7,286,359	\$5,758,739	\$1,527,620
RELATED USER OUTPUT	<u>\$97,722,941</u>	<u>\$84,556,242</u>	<u>\$13,166,699</u>
<b>TOTAL OUTPUT (THOUSANDS)</b>	<b>\$105,009,300</b>	<b>\$90,314,981</b>	<b>\$14,694,319</b>
<b>TOTAL PORT SECTOR LOCAL PURCHASES (THOUSANDS)</b>	<b>\$2,322,524</b>	<b>\$2,026,756</b>	<b>\$295,768</b>
<b>STATE AND LOCAL TAXES (THOUSANDS)</b>			
DIRECT, INDUCED AND INDIRECT TAXES	<u>\$715,473</u>	<u>\$620,476</u>	<u>\$94,997</u>
<b>TOTAL PORT SECTOR STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$715,473</b>	<b>\$620,476</b>	<b>\$94,997</b>
RELATED USER STATE AND LOCAL TAXES	<u>\$3,340,963</u>	<u>\$1,588,253</u>	<u>\$1,752,711</u>
<b>TOTAL STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$4,056,436</b>	<b>\$2,208,729</b>	<b>\$1,847,707</b>

Totals may not add due to rounding

Port-generated direct, induced and indirect jobs grew by 1,822 jobs. Direct jobs grew by 3,345 jobs, while indirect jobs grew by 1,761 jobs. However, reflecting the structural shifts in the personal income multiplier and the lower jobs generated per dollar value of sales, induced jobs fell by 3,284 jobs. Jobs with users of Florida ports grew by 208,543. It is to be emphasized that these jobs within the state include jobs with Florida importers and exporters that could have previously been located in the state in 2012, but were using non-Florida ports for the shipment and receipt of cargo, particularly containerized cargo. The related jobs also include new jobs to the state as the result of increased trade via the Florida ports. However, the share of new related users jobs created between 2012 and the first three quarters of 2016 cannot be estimated. The growth in related user jobs reflects the growth in the economic sphere of influence within the state for the Florida seaports.

Total economic value associated with cargo activity at the Florida seaports, as defined as the total output plus the re-spending and local consumption impact, grew by \$14.9 billion, from \$94.3 billion in 2012 to \$109.2 billion in the first three quarters of 2016. Direct, induced and indirect tax revenue grew by nearly \$100 million since 2012.

The growth in direct jobs generated by each commodity is shown in Exhibit IV-3. As demonstrated in this exhibit, the growth in jobs was driven by the growth in containerized cargo, followed by jobs generated by dry bulk cargo, steel and breakbulk handled at the Florida seaports. Job losses are directly driven by the loss in forest products and liquid bulk cargoes. The loss of jobs generated by automobile imports and exports reflects the growth in auto exports compared to auto imports, which are less labor intensive at the port of export as these autos require minimal processing and often move to the ports of export by rail.

### EXHIBIT IV-3: CHANGE IN DIRECT CARGO GENERATED JOBS BY COMMODITY

COMMODITY	2015/2016 DIRECT JOBS	2012 DIRECT JOBS	Change DIRECT JOBS
CONTAINERS	13,801	11,191	2,610
DRY BULK	10,420	9,675	745
PETROLEUM	4,640	4,570	70
AUTOS/RO-RO	1,219	1,295	-77
STEEL	1,071	639	433
OTHER BREAK BULK	867	612	255
FOREST PRODUCTS	642	972	-330
LIQUID BULK	491	1,067	-576
NOT ALLOCATED	7,966	7,751	215
<b>TOTAL</b>	<b>41,116</b>	<b>37,771</b>	<b>3,345</b>

Totals may not add due to rounding

### Changes in Impacts Generated by Cruise Operations

The number of cruise passengers calling Florida seaports has grown significantly since 2012. As a result of this increase, direct, induced, indirect and related jobs grew by 7,299 jobs. Direct jobs grew by 644 over the period, while indirect jobs grew by 846 jobs, reflecting a growth of \$63.3 million of local purchases. The Cruise Line International Association estimates an additional 95,764 related user jobs are supported by the cruise industry in Florida. Revenue generated by cruise operations at the Florida seaports grew by \$855 million dollars. The stronger growth in revenue and indirect jobs, compared to the smaller growth in direct jobs, reflects the growing size of the cruise ships calling the ports in Florida because fewer ships are now required to handle the same number of passengers.

Exhibit IV-4 shows the change in economic impacts generated by the growth in cruise passenger activity at Florida seaports since 2012.

#### EXHIBIT IV-4: CHANGES IN CRUISE DRIVEN ECONOMIC IMPACTS AT FLORIDA SEAPORTS

	CRUISE GENERATED 2015/2016	CRUISE GENERATED 2012	CHANGE IN CRUISE IMPACTS
<b>JOBS</b>			
RELATED USER	95,764	89,831	5,933
DIRECT	20,676	20,032	644
INDUCED	11,685	11,809	(124)
INDIRECT	<u>10,175</u>	<u>9,329</u>	<u>846</u>
<b>TOTAL JOBS</b>	<b>138,300</b>	<b>131,000</b>	<b>7,299</b>
<b>PERSONAL INCOME (THOUSANDS)</b>			
RELATED USER INCOME	\$4,453,026	\$4,177,142	\$275,884
DIRECT	\$707,726	\$657,783	\$49,943
RE-SPENDING/LOCAL CONSUMPTION	\$1,212,375	\$1,280,956	-\$68,581
INDIRECT	<u>\$338,461</u>	<u>\$308,199</u>	<u>\$30,262</u>
<b>TOTAL PERSONAL INCOME (THOUSANDS)</b>	<b>\$6,711,588</b>	<b>\$6,424,080</b>	<b>\$287,507</b>
<b>DIRECT PORT SECTOR REVENUE (THOUSANDS)</b>	<b>\$7,167,274</b>	<b>\$6,311,739</b>	<b>\$855,536</b>
<b>TOTAL PORT SECTOR LOCAL PURCHASES (THOUSANDS)</b>	<b>\$521,611</b>	<b>\$458,298</b>	<b>\$63,314</b>
<b>TOTAL PORT SECTOR STATE AND LOCAL TAXES (THOUSANDS)</b>	<b>\$213,180</b>	<b>\$207,478</b>	<b>\$5,701</b>

Totals may not add due to rounding





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