The Economic Impact of the New York-New Jersey Port Industry

Prepared by:

A. Strauss-Wieder, Inc.
Analyses for informed decision making

February 2014
Table of Contents

Executive Summary.................................................................2
Introduction ..................................................................................4
The Port and the Economic Impact Generated in 2012...............6
Economic Impact of Upcoming Port-Related Investments..........10
Appendix A: Port Industry Definitions.................................12
Appendix B: Background on the Economic Impact Methodology....14
In 2012, the New York-New Jersey Port Industry survived Superstorm Sandy and continued to solidify its position as a global hub of commerce. Containerized cargo movements grew. Large-scale distribution centers, some exceeding one million square feet were leased, with new warehouse construction resuming to meet the increasing demand for space.

The Port Industry’s impact also grew, with over 296,000 jobs supported, an increase over the 279,200 jobs sustained in 2010. The impacts generated by Port Industry operations included:

- 165,350 direct jobs
- 296,060 total jobs in the Region
- Over $18.3 billion in personal income
- Nearly $28.9 billion in business income
- More than $6.1 billion in federal, state and local tax revenues, with local and state tax revenues of over $2.05 billion and federal tax revenues of nearly $4.07 billion

Note that the new assessment reflects a change in economic impact models – a shift to the IMPLAN model – combined with updated Port Industry information, which means that the 2012 economic impacts are different from the 2010 impacts in some aspects. The business revenue definition has changed with the new model (e.g., retail revenue is based now on gross margins rather than gross sales). In addition, some impacts that may have registered as “direct” in previous analyses are now captured in the total impacts or shifted.

In New Jersey and the Lehigh Valley area of Pennsylvania, the increase in jobs reflects the growth in Port-related distribution operations. In New York City, the growth reflects the vibrancy of the maritime related financial industry and visitor spending by cruise passengers.

The stage is also set for the economic value of the Port Industry to expand as the economy continues to improve, the raising of the Bayonne Bridge roadbed begins, ExpressRail on-dock rail facilities expand, roadways to Port facilities are improved and a new labor agreement proceeds.

The capital investments committed from 2013 through 2018 are nearly $3.45 billion. During this five-year investment period, approximately 4,825 direct jobs and about 8,075 total jobs will be supported annually in the region. The investments are anticipated to contribute over $5.6 billion in business income over the construction period and generate $776 million in federal, state and local tax revenues over the five-year period.
This report summarizes the current economic value of the New York-New Jersey Port Industry and is the latest in a continuing series of economic impact reports produced by the New York Shipping Association, Inc., with the input of the Port Community. The report summarizes the maritime activity that occurred in 2012 and the resulting economic impacts generated in the Region, New York, New Jersey and New York City.

2012 was a remarkable year for the Port of New York and New Jersey. Trade continued to grow as the US economy recovered, and significant progress was made to begin raising the Bayonne Bridge roadbed to accommodate the larger classes of vessels. Then, at the height of the peak shipment season in late October, Superstorm Sandy hit the New York-New Jersey Region, causing widespread devastation. Port facilities were damaged and closed for a week, with some vessels and cargo diverted. Yet, Superstorm Sandy also demonstrated the determination, cooperation and resiliency of the Port Community to work together to recover and resume business quickly.

The 2012 analysis continues using the regional definition that includes counties in Southern New Jersey and Eastern Pennsylvania where warehouses and distribution centers are closely tied to the New York-New Jersey Port. The 31-County region includes:

- 12 counties in New York State: Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, and Westchester
- Four Pennsylvania counties: Northampton, Lehigh, Monroe and Pike Counties

With all the changes that have occurred in both the economy and the freight industry, the 2012 analysis uses a new and updated economic impact model (which is discussed in the Appendix) and reflects the findings of Port Community surveys regarding changes in costs and types of expenditures.
Despite a week’s closure as a result of Superstorm Sandy, Port Industry activity continued to grow in 2012 and expand the impacts rippling through the regional economy. The region’s strength as a regional platform for distribution, a global hub for maritime related financial activities, and a place to visit were evident in the 2012 impacts.

The Total Economic Impact of the Port Industry Grew in the Region

In 2012, the New York-New Jersey Port handled:

- Over 5.5 million twenty foot equivalent containers (TEUs)
- Over 51 million tons of bulk cargo
- 187,000 tons of breakbulk cargo
- Over 707,000 vehicles
- 325 cruise vessel calls

Containerized and roll-on/roll-off volumes grew. The region’s warehousing and distribution industry accelerated its recovery. The expansion of vessel rotations providing direct Asian to East Coast service, the Port’s role as a premiere gateway, the Region’s population concentration, and the Region’s known value as a distribution platform combined to create a new trend — an increasing number of the new larger distribution centers, particularly those serving retail businesses, received cargo from vessels calling on the Port rather than land bridged by rail from West Coast ports.

In 2012, based on the new economic impact model, the New York-New Jersey Port Industry supported:

- 165,350 direct jobs
- 296,060 total jobs in the Region
- Over $18.3 billion in personal income
- Nearly $28.9 billion in business income
- More than $6.1 billion in federal, state and local tax revenues, with local and state tax revenues of over $2.05 billion and federal tax revenues of nearly $4.07 billion

The change in economic impact models – a shift to the IMPLAN model – combined with updated Port Industry information means that the 2012 economic impacts are different from the 2010 impacts in some aspects. For example, as noted in the Appendix, the business revenue definition has changed (e.g., retail revenue is based now on gross margins rather than gross sales). In addition, in developing the updated port industry information, some impacts that may have registered as “direct” in previous analyses are now captured in the total impacts or shifted. For instance, governmental agency workers who were previously included in containerized cargo movements have been shifted to the government category. Productivity and workforce changes, as well as a reduction in the number of truck drivers serving the Port, are also reflected in the economic impacts.

The number of total jobs grew from 279,200 in 2010 to 296,060 in 2012. The growth was most evident at locations outside of the Port facilities — at the warehouses and distribution centers that have grown in number and size, as well as increasing received cargo from the Port. It is anticipated that as additional waterfront workers are hired in 2013 and beyond, the impacts on-site and rippling through the region will continue to grow.

As a comparison, the New York-New Jersey Port Industry in 1993, as measured for a slightly smaller region, supported a total of 166,500 jobs and generated $6.2 billion in personal income.
Details of the Regional Economic Value of the Port

31-County Region

<table>
<thead>
<tr>
<th>Use</th>
<th>Direct employment</th>
<th>Total employment</th>
<th>Personal income</th>
<th>Business activity</th>
<th>State and Local Taxes</th>
<th>Federal Tax Revenue</th>
<th>Total Tax Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>3,362</td>
<td>11,891</td>
<td>$873.1</td>
<td>$3,227.4</td>
<td>$137.0</td>
<td>$215.5</td>
<td>$352.5</td>
</tr>
<tr>
<td>Breakbulk</td>
<td>186</td>
<td>510</td>
<td>$37.3</td>
<td>$126.1</td>
<td>$5.5</td>
<td>$8.7</td>
<td>$14.2</td>
</tr>
<tr>
<td>Roll-On/Roll-Off</td>
<td>1,389</td>
<td>3,784</td>
<td>$260.9</td>
<td>$883.3</td>
<td>$37.5</td>
<td>$62.5</td>
<td>$100.0</td>
</tr>
<tr>
<td>Container</td>
<td>22,621</td>
<td>52,369</td>
<td>$3,521.9</td>
<td>$10,872.1</td>
<td>$454.5</td>
<td>$796.4</td>
<td>$1,250.9</td>
</tr>
<tr>
<td>Cruise</td>
<td>3,752</td>
<td>5,351</td>
<td>$292.5</td>
<td>$718.5</td>
<td>$54.0</td>
<td>$59.8</td>
<td>$113.8</td>
</tr>
<tr>
<td>Warehousing</td>
<td>109,657</td>
<td>171,969</td>
<td>$9,213.3</td>
<td>$2,866.3</td>
<td>$865.6</td>
<td>$2,042.1</td>
<td>$2,907.7</td>
</tr>
<tr>
<td>Freight Forwarding</td>
<td>10,000</td>
<td>16,860</td>
<td>$1,097.2</td>
<td>$2,133.5</td>
<td>$122.2</td>
<td>$211.7</td>
<td>$333.9</td>
</tr>
<tr>
<td>HQ and other maritime fcns</td>
<td>6,400</td>
<td>16,280</td>
<td>$1,385.3</td>
<td>$4,128.1</td>
<td>$190.6</td>
<td>$310.2</td>
<td>$500.8</td>
</tr>
<tr>
<td>Government</td>
<td>2,565</td>
<td>4,854</td>
<td>$388.7</td>
<td>$912.3</td>
<td>$32.3</td>
<td>$82.7</td>
<td>$115.0</td>
</tr>
<tr>
<td>Insurance</td>
<td>2,945</td>
<td>6,648</td>
<td>$652.0</td>
<td>$1,576.5</td>
<td>$86.6</td>
<td>$145.0</td>
<td>$231.6</td>
</tr>
<tr>
<td>Banking</td>
<td>2,475</td>
<td>5,548</td>
<td>$604.7</td>
<td>$1,448.3</td>
<td>$68.6</td>
<td>$132.6</td>
<td>$201.2</td>
</tr>
</tbody>
</table>

**TOTAL ECONOMIC IMPACT**  
165,353  
296,064  
$18,326.9  
$28,892.4  
$2,054.4  
$4,067.2  
$6,121.6

In millions of 2013 dollars

*Note: Total impacts include direct, indirect and induced effects.*
The Port Industry Generates Significant Economic Impacts throughout New York and New Jersey

The Port Industry contains a wide range of activities, including physical activities, information and financial flows, transportation arrangements, and governmental agencies. These activities are spread throughout New York and New Jersey and extend into Pennsylvania, primarily in the Lehigh Valley area.

In the State of New Jersey, the Port Industry supports:
- 143,410 direct jobs
- 251,730 total jobs in the State
- Nearly $14.5 billion in personal income
- Over $20 billion in business income
- Nearly $4.9 billion in federal, state and local tax revenues, with local and state tax revenues of almost $1.6 billion and federal tax revenues of over $3.3 billion

The State of New Jersey has seen an increase in the number of large distribution centers, with some new buildings exceeding one million square feet. For retail companies in particular, the close proximity to the port, consumers and national networks appears to have enhanced the attractiveness of the State as a location for distribution activities.

In New York City, the Port Industry supports:
- 17,040 direct jobs
- 34,830 total jobs in the City
- Nearly $3.3 billion in personal income
- Almost $7.6 billion in business income
- Over $1 billion in federal, state and local tax revenues, with local and state tax revenues of almost $414 million and federal tax revenues of over $640 million

New York City saw an increase in financial industry workers, as well as the economic impacts of cruise passengers who extended their vacations either before or after their trip and spent their visitor dollars in the City.

In the State of New York, the Port Industry supports:
- 22,680 direct jobs
- 45,730 total jobs in the State
- Nearly $3.8 billion in personal income
- Over $9 billion in business income
- Nearly $1.3 billion in federal, state and local tax revenues, with local and state tax revenues of $500 million and federal tax revenues of $760 million

The State of New York impacts include the New York City impacts. In addition to including some warehousing, transportation arrangements, and other Port Industry activities, New York benefits from the ripple effects of Port Industry suppliers and workers located in the State.
In the Lehigh Valley Area of Pennsylvania, the New York-New Jersey Port Industry supports warehousing and distribution center activities estimated to include:

- 10,630 direct jobs
- 16,510 total jobs in the four counties included in the Lehigh Valley area of the Region
- $742 million in personal income
- Over $1.6 billion in business income
- $218 million in federal, state and local tax revenues, with local and state tax revenues of $67 million and federal tax revenues of $152 million
The public and private sector have invested over $2.5 billion in the Port of New York and New Jersey to ensure the waterside, terminal and landside facilities can efficiently handle increasing cargo and passenger volumes in an environmentally sustainable manner. The supply chain industry, however, continues to evolve, with new vessel types (including the larger post-Panamax vessels), new information and security systems and new service requirements. The New York-New Jersey region, with an expansive road and rail system originally built for a different era, also is investing to ensure that legacy infrastructure can meet 21st century needs.

Between 2013 and 2018, over $3.45 billion in capital investments are committed to Port-related infrastructure improvements. Channels continue to be deepened and maintained at 50 foot. Work commenced in 2014 on raising the road bed of the Bayonne Bridge to ensure sufficient air draft. Terminals continue to invest extensively in berths, buildings and equipment. The ExpressRail on-dock rail system will be expanded in Jersey City as the enhanced Global Marine Terminal is completed.

### Committed Capital Investments in Port-Related Infrastructure between 2013 and 2018

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadways and Bridge Improvements</td>
<td>$1,588.3</td>
</tr>
<tr>
<td>Terminal Improvements (Berths, Buildings and Equipment)</td>
<td>$681.9</td>
</tr>
<tr>
<td>Rail Improvements and Equipment</td>
<td>$293.4</td>
</tr>
<tr>
<td>Channel Deepening</td>
<td>$842.0</td>
</tr>
<tr>
<td>Security Equipment</td>
<td>$15.3</td>
</tr>
<tr>
<td>Information Technology Purchases</td>
<td>$38.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$3,459.3</strong></td>
</tr>
</tbody>
</table>

*Bayonne Bridge included. $1.5 Billion Goethals Bridge replacement not included.*
In the New York-New Jersey region, the construction and investment activity between 2013 and 2017 will produce over the construction period:

- 24,130 direct jobs during construction or about 4,825 jobs annually
- 40,370 total jobs in the Region during construction or about 8,075 jobs annually
- Nearly $2.7 billion in personal income
- Over $5.6 billion in business income
- More than $776 million in federal, state and local tax revenues, with local and state tax revenues of nearly $235 million and federal tax revenues of $542 billion

The economic value may increase as additional public and private sector funds are committed to Port-related investments and infrastructure, such as the Goethals Bridge replacement.
Port Cargo Movements

- Containerized cargo handling refers to the handling of cargo loaded in maritime containers. Each container, which can accommodate a nearly complete range of commodities, is handled as a single unit. The most commonly used types of containers are either 20 or 40 feet in length. A common measure used in the maritime industry refers to a “twenty-foot equivalent unit” or TEU. A TEU equals one 20 foot container. A 40 foot container would equate to two TEUs.

- Breakbulk cargo handling is the traditional means of handling general cargo. It describes the handling of a broad variety of commodities as individual pieces or as palletized cargo. Breakbulk handling techniques are used to move such commodities as forest products, paper, bananas, fresh fruit, steel and cocoa beans.

- Bulk cargo handling refers to the handling, in a continuous operation, of dry and liquid uniform commodities, such as petroleum, petrochemicals, grain and coal. The cargo is not divided into individual units.

- Auto and vehicle transport describes the waterborne movement of motorized, wheeled units. Typically these vehicles are “rolled on and rolled off” (RO/RO) vessels with multiple decks by terminal workers.

Cargo Movement Activities

<table>
<thead>
<tr>
<th>VESSEL ACTIVITIES</th>
<th>TERMINAL ACTIVITIES</th>
<th>TRANSACTION ACTIVITIES</th>
<th>INLAND MOVEMENT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilotage, Tugs, Provisions, Fuel, Crew Shore Leave, etc.</td>
<td>Cranes, Stevedoring, Yard Handling, Cargo Manipulation, Inspections, etc.</td>
<td>Banking, Insurance, Data Processing, Freight Forwarding, Customhouse Brokers, etc.</td>
<td>Trucking, Rail, Barge and/or Pipeline</td>
</tr>
</tbody>
</table>

Cargo moves inland in a variety of ways, including:

- **Long Distance Truck** – the fee charged by trucking firms for the inland movement of cargo beyond the port region. Usually, long distance trucking rates are developed and drivers compensated on a mileage basis.

- **Short Distance Truck** – the fee charged by trucking firms for the inland movement of cargo to a destination or from an origin within the port region (such as a warehouse or manufacturing facility). Usually, shorter distance trucking rates are quoted and drivers compensated on a flat-rate basis.

- **Barge** – Barges are a means used for conveying cargo between vessels and ports/terminals other than the one where the vessel is docked.

- **Rail** – Inland rail movements are defined as including the truck drayage fee associated with moving the cargo from the terminal to the rail yard, along with the costs incurred by the railroad(s) for moving the shipment. Rail costs include expenditures associated with rail terminal operations, switching and line haul movements.

- **Pipeline** – Pipeline movements are generally associated with the movement of liquid bulk commodities.
Cruise Passenger Movements

- Cruise passenger movements include the vessels that carry passengers on recreational cruises of various durations.
- Cruise passengers may also spend time in the Region before or after their voyages, generating additional economic impacts through their visitor expenditures. The cruise operations, based on surveying, reflect the various characteristics of the three terminals in New York and New Jersey and the cruise lines that call on this region.
- Inland transportation involving cruise passengers includes air, private car, bus, transit, limousines, taxis, and walking.

Passenger Movement Activities

<table>
<thead>
<tr>
<th>VESSEL ACTIVITIES</th>
<th>TERMINAL ACTIVITIES</th>
<th>PRE- AND POST-CRUISE VISITOR ACTIVITIES</th>
<th>INLAND MOVEMENT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilotage, Tugs, Provisions, Fuel, Crew Shore Leave, etc.</td>
<td>Stevedoring, Passenger Services, Inspections, Immigration, etc.</td>
<td>Hotels, Restaurants, Local Attractions and Other Visitor Activities In The Port Area</td>
<td>Private Car, Taxi/Limo, Bus/Transit/Airline, Walking, etc.</td>
</tr>
</tbody>
</table>

Photo courtesy NY City Economic Development Corporation (NYCEDC).
Appendix B: Background on the Economic Impact Methodology

Working closely with Port Partners, A. Strauss-Wieder, Inc. (ASWinc) conducted surveys of the port industry terminals, carriers and other transportation providers, as well as reviewed the most recent US Census County Business Patterns information on such sectors as finance and insurance to review overall business trends. In addition, ASWinc developed square footage estimates and the employment associated with Port-related warehousing and distribution centers. The review of the distribution industry also included assessing trends and conditions, field visiting key nodes of distribution centers activities, and talking with industry professionals.

The 2012 Port Industry analysis debuts a new, customized economic impact model. While the base underlying methodology continues to be input-output analysis, IMPLAN is now the base model used. As such, some definitions and impacts will differ from preceding Port Industry economic impact studies.

The IMPLAN model includes the most recent economic data, enables multi-regional and county-level assessments, and is used by public agencies throughout the US, including transportation authorities in the New York-New Jersey region. Implan is a complete economic assessment package including data and software. More information on IMPLAN can be found at http://implan.com/V4.

For the New York Shipping Association, ASWinc constructed a multi-regional input-output model using the IMPLAN version 3.0 software with updated port cargo and passenger capabilities.

Multi-Regional Input-Output models (MRIO) capture the economic impacts occurring in several connected economic regions, along with “trade flows.” Trade flows are defined as the purchase of goods and services among each of the identified regions. In addition to the trade flows, the models consider and reflect the purchase of goods and services from sources outside the identified regions. These leakages reduce impacts. For example, some suppliers and workers may come from outside of New Jersey. The impacts associated with these expenditures accrue to the locations outside of the State rather than to New Jersey.

The economic impacts were identified for:

- The 31-County New York-New Jersey-Pennsylvania Region
- New York City
- The State of New Jersey
- The State of New York

The impacts shown are total impacts at each geographical level, with the impacts originating in the various regions. For example, maritime cargo and passenger operations originate at the terminals where the vessels call. Warehousing locations are found throughout the 31-County region, with key clusters along the New Jersey Turnpike, the Lehigh Valley area of Pennsylvania and in the immediate vicinity of Port terminals.
MRIO analyses require several considerations and reviews beyond single region economic impact models:

- Each region within a MRIO model is separate and do not overlap. The NYSA MRIO model has separate regions for:
  - New York City
  - The rest of the New York counties in the 31-County region
  - The rest of New York State
  - The New Jersey counties in the 31-County region
  - The rest of New Jersey
  - The four Pennsylvania counties in the 31-County region

Without the creation of separate regions, a duplication of impacts would occur.

- In general, the economic characteristics within each region in a MRIO model will vary, which reflects the differences in costs and other considerations in each area. Indeed, costs can be different between locations in New York City and the Lehigh Valley area of Pennsylvania. These differences (such as in employee/output ratios) are considered in developing the inputs for the model.
Definitions

The economic impact assessment estimates the total impacts, which are defined to include:

- **Direct** – the spending at the site of the economic activity. Direct effects are the focal point of an impact analysis.

- **Indirect** – the purchases of goods and services by suppliers. By definition, the first round of indirect impacts includes the purchase of supplies and services that are required to produce the direct effects. Subsequent purchases of supplies and services generate other rounds of indirect impacts. Such purchases continue to ripple through the economies of each of the regions in the MRIO model.

- **Induced** – the purchases (of such items as food, clothing, personal services, vehicles, etc.) that arise, in turn, from the increase in the aggregate labor income of households.

The total economic impact consists of the direct, indirect and induced effects as shown above.

The economic measurements included in this analysis are:

- **Employment Effects** – Jobs generated or supported, including:
  - Direct employment: onsite full and part-time equivalent jobs or jobs in the initial industry/business development.
  - Total employment: The total number of full-time equivalent jobs (direct, indirect and induced) generated in each of the geographically defined regions.

- **Business Output/Revenue** – Output represents the value of industry production. In IMPLAN, these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For retail and wholesale trade, output = gross margin and not gross sales.

- **Personal Income Effects** – Includes all forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.

- **State and Local Tax Effects** – defined as revenues collected by state and sub-state governments. The taxes include employee, personal, proprietor, business, household and corporate taxes.

- **Federal Tax Effects** – defined as revenues collected by the federal government from corporate income, personal income, social security, and excise taxes.
Background on Input-Output Analysis

Input-output (I-O) modeling is among the most accepted means for assessing economic impacts. The approach provides a concise and accurate means for articulating the interrelationships among industry sectors. I-O modeling focuses on the interrelationships among sectors in an economy. Within the I-O model, the economy of an area is mapped out in table form, with each industry listed across the top as a consuming sector (or market) and down the side as a producing sector.

The basic framework for I-O analysis originated over 250 years ago when François Quesenay published Tableau Economique in 1758. Quesenay’s “tableau” graphically and numerically portrayed the relationships between sales and purchases of the various industries of an economy. More than a century later, his description was adapted by Leon Walras, who advanced I-O modeling by providing a concise theoretical formulation of an economic system (including consumer purchases and the economic representation of “technology”).

Wassily Leontief greatly advanced Walras’s theoretical formulation and was awarded the Nobel Prize in 1973. Leontief first used his approach in 1936 when he developed a model of the 1919 and 1929 US economies to estimate the effects of the end of World War I on national employment. Recognition of his work awaited wider acceptance and use of the approach. This meant development of a standardized procedure for compiling the requisite data (today’s national economic census of industries) and enhanced capability for calculations (i.e., the computer). The federal government immediately recognized the importance of Leontief’s development and has been publishing input-output tables of the US economy since 1939.

The models can be quite detailed. The current US and IMPLAN models have more than 400 sectors. This level of detail provides a consistent and systematic approach, as well as a more accurate means for assessing the multiplier effects of changes in economic activity.

I-O Analysis makes several key assumptions. First, the information used to create an input-output model is for a given point in time. The information in the model reflects a “snapshot” of the technical requirements and industry relationships at a given point in time. Because of this, input-output models are regularly updated.

Regional input-output models, such as the one used in this economic impact assessment, need to account for the percentage of the demand for an industry’s output or the requirements for a transportation project that can be readily supplied by firms within the specified region. Firms within the specified region may not be able to supply all the products needed. Therefore, goods and services may need to be purchased from outside of the specified region. The default “regional purchase” coefficients within the IMPLAN model were used for this analysis.