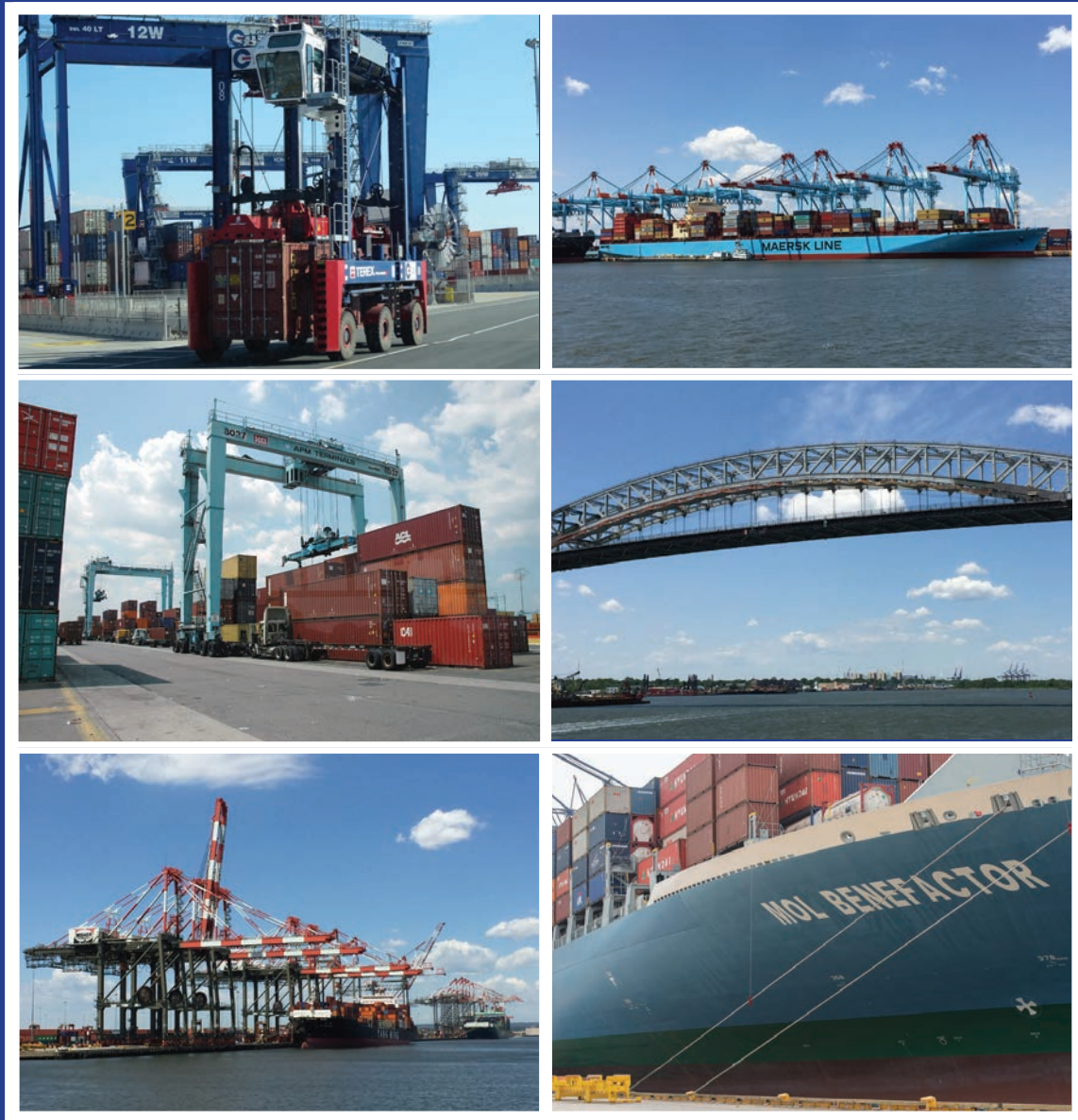


The Economic Impact of the New York-New Jersey Port Industry



2017 Report



Prepared by:

Anne Strauss-Wieder

Director, Freight Planning

North Jersey Transportation Planning Authority
As a member of the Council on Port Performance

*In collaboration with the
New York Shipping Association and our Port Partners*





ATLANTIC STAR

UNITLE CONTAINER
OR TWENTY CONTAINER
MAX CARGO BEAM

REPAIRS
FOR ALL TYPES OF SHIPS
AND YACHTS

The Economic Impact of the 2016 New York-New Jersey Port Industry



John Nardi
President
New York Shipping Association, Inc.

The significant economic contribution the Port of New York and New Jersey makes to this region is demonstrated once again in this the 7th iteration of the Economic Impact Study of the New York-New Jersey Port Industry.

The value of this study as a resource is noteworthy, especially when you hear the facts and figures often referenced in speeches or see it quoted in national and international publications. However, more importantly, these numbers provide a quantitative measurement of the jobs, incomes, production of goods and services and revenue for the respective states and federal government produced by the maritime activities taking place in the region. Clearly the regional economy is interwoven with the Port.

When decisions are being made in terms of investment in infrastructure that connects the Port to the roads, rails and bridges that facilitate the movement of cargo, there is no more important and necessary information to emphasize the critical connection.

As we look towards continued growth in cargo and port efficiencies, we will continue to evolve in the Port of New York and New Jersey to remain a substantial, lasting and stable economic driver for our regional economy.

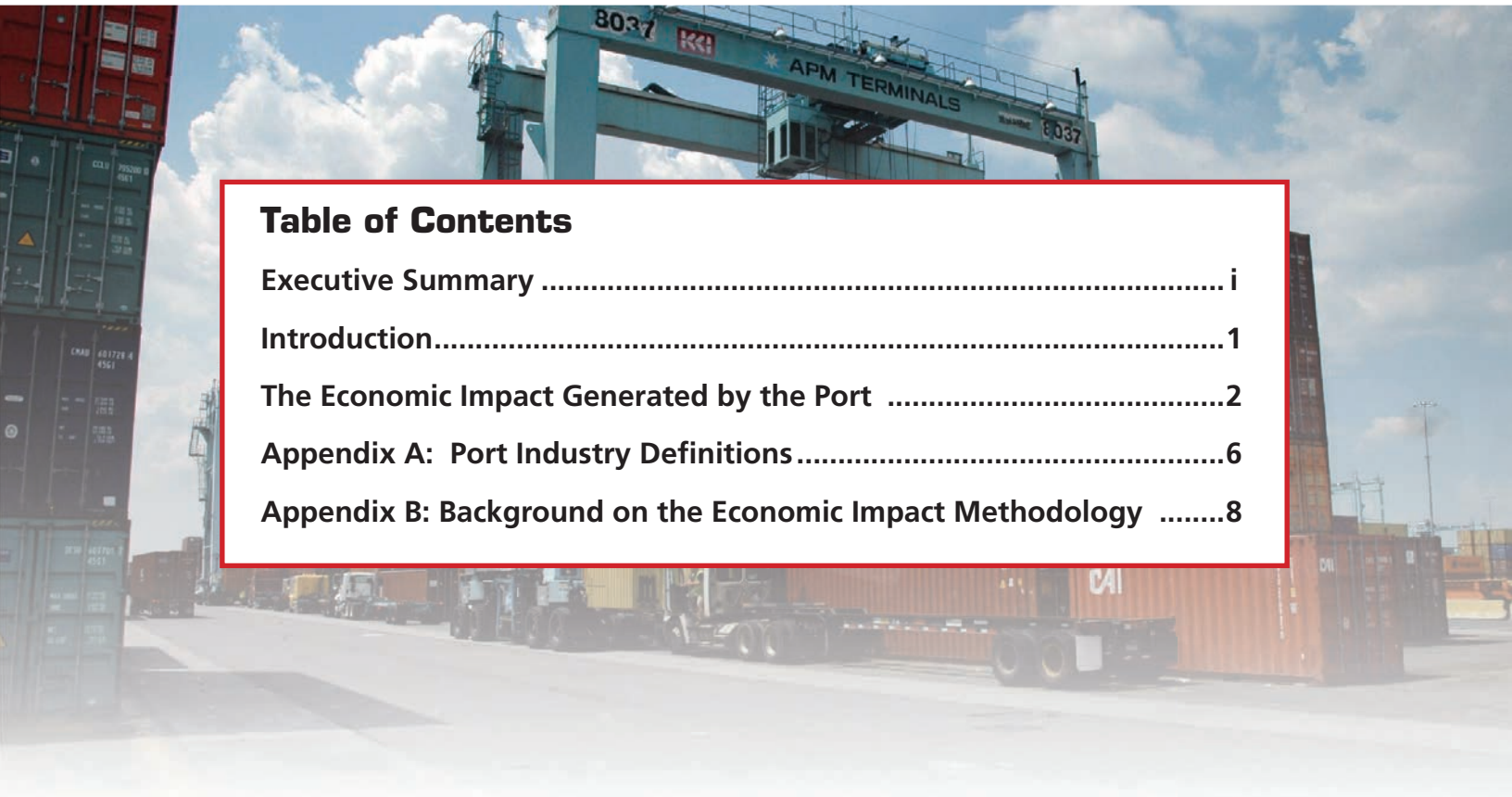
Sincerely,



John J. Nardi
President

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Executive Summary

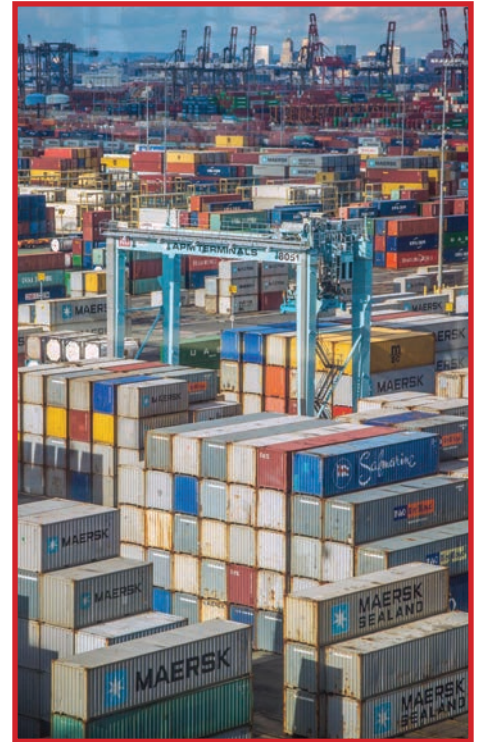
In 2016, the Port Industry solidified the 31 county New Jersey-New York-Pennsylvania Region's position as one of the leading distribution platforms for North America. Cargo movements grew, the cruise industry in New Jersey expanded, and the region's industrial space increased at an unprecedented rate. What was glimpsed at in the previous economic impact assessment in 2014 became evident in 2016 and provides a vision of what the future now holds.

In 2016, the region's maritime facilities handled:

- Nearly 6.3 million twenty-foot equivalent containers (TEUs)
- Close to 663,000 vehicles
- Nearly 47.4 million tons of bulk cargo
- Nearly 140,000 tons of breakbulk cargo
- 260 cruise vessels

The Port Industry's impact grew, with nearly 400,000 jobs supported, an increase over the 336,600 supported in 2014 and 296,000 jobs supported in 2012. The impacts generated by Port Industry operations included:

- 229,000 direct jobs
- 400,000 total jobs in the Region
- More than \$25.7 billion in personal income
- More than \$64.8 billion in business income
- Close to \$8.5 billion in federal, state and local tax revenues, with local and state tax revenues of more than \$2.8 billion and federal tax revenues of more than \$5.7 billion



Already home to one of the largest concentrations of industrial and distribution space, the region added tens of millions of square feet of capacity between 2014 and 2016. Further, occupancy rates grew substantially, with companies seeking buildings in close proximity to the region's crucial consumer markets. Many of the new operations involve ecommerce, which has a higher employment per square foot than traditional distribution buildings. With such high concentrations of consumers and distribution space in close proximity to a major port, the amount of cargo flowing directly between the Port of New York and New Jersey and these buildings increased. Such volumes make the Port more attractive to those shipping cargo to more distant North American markets.

The Port Industry's impact grew from 336,600 jobs in 2014 to 400,000 jobs in 2016

Introduction

This report summarizes the economic contributions of the New York-New Jersey Port Industry's 2016 operations and reflects activity that occurred and the resulting economic impacts generated in the region, New York, New Jersey and New York City.

The report is the latest in a continuing series of economic impact assessments produced by the New York Shipping Association, Inc., with the input and the support of the port community. The North Jersey Transportation Planning Authority, a member of the Council on Port Performance, performed the current assessment, continuing the consistent methodology used for nearly 20 years.

For the New York-New Jersey Port Industry, activity in 2016 solidified the region's position as one of the leading distribution platforms for North America. Cargo movements grew, the cruise industry in New Jersey expanded, and the region's industrial space increased at an unprecedented rate. What was glimpsed at in 2014 became evident in 2016 and provides a vision of what the future now holds.

The raising of the Bayonne Bridge roadbed moved towards completion in 2017, with the progress evident in 2016. Container vessels with upwards of 10,000 twenty foot container (TEU) capacity called at the Port at GCT Bayonne. New workers joined the ranks at the terminals and elsewhere in the region. The Council on Port Performance continued its collaborative work on crucial issues, including a task force focused on workforce development.

The region's position as one of the top concentrations of industrial space in North America solidified. Tens of millions of square feet of Class A state-of-the-art buildings were completed and occupied. Occupancy rates at all industrial buildings increased. Ecommerce was embraced by consumers and businesses, with the need for proximity to consumers becoming an increasing priority as delivery times offered moved from two-day to same-day. With the Region offering e-retailers the densest concentration of affluent consumers in the country, the demand for such space has become red hot. The Region's high concentration of these operations continued to grow increasing the efficiency of bringing and sending products through the port.

This 2016 analysis continues to define the Region as a 31-county area that reaches beyond New York City and northern New Jersey to include parts of 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
- 15 New Jersey counties: Bergen, Burlington, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren
- Four PA counties: Northampton, Lehigh, Monroe and Pike Counties

The 31-County New York – New Jersey – Pennsylvania Region



The Economic Value Generated in 2016

This economic impact assessment provides a snapshot of the contributions made by the New York/New Jersey Port Industry, as measured in jobs, personal and business income and tax revenues. This economic value is ongoing – the continuing activities of the Port Industry generates and sustains jobs and revenues. As those activities grow and change, the economic value generated reflect the new conditions.

The Region Solidifies its Position as a Leading Distribution and Supply Chain Platform for North America.

In 2016, the New York-New Jersey Port handled:

- Nearly 6.3 million twenty-foot equivalent containers (TEUs)
- Close to 663,000 vehicles
- Nearly 47.4 million tons of bulk cargo
- Nearly 140,000 tons of breakbulk cargo
- 260 cruise vessel calls

In general, maritime operations through the Port have increased since 2014 with:

- 500,000 additional TEUs
- More than 5 million additional tons of bulk cargo
- More than 30,000 more breakbulk tons



Overall, slightly fewer cruise vessels called on the Port although the number of cruise vessels berthing in New Jersey increased.

In the New Jersey portion of the region alone, overall industrial space capacity grew by 9 million square feet, exceeding 811 million square feet with more than 11 million additional square feet under construction at the end of 2016.¹ The Lehigh Valley portion of the region had over 98 million square feet of total industrial space at the end of 2016, with over 6 million additional square feet under construction.²

In 2016, the economic value supported by ongoing Port Industry operations in the 31-county region included:

- 229,000 direct jobs
- 400,000 total jobs in the Region
- More than \$25.7 billion in personal income
- More than \$64.8 billion in business income
- Nearly \$8.5 billion in federal, state and local tax revenues, including more than \$2.8 billion in local and state tax revenues and federal tax revenues of more than \$5.7 billion

**Nearly \$8.5 billion
in federal, state and
local tax revenue**

The industry's impact grew, with nearly 400,000 jobs supported, compared to 336,600 supported in 2014, 296,000 in 2012 and 279,200 jobs supported in 2010. As a comparison, in 1993 the industry supported a total of 166,500 jobs and generated \$6.2 billion in personal income. (Note: these figures were measured for a smaller region in 1993)

The Port continued to hire and train new workers. More cargo through the port required more services and workers to process shipments and move them to and from distribution and industrial facilities. More distribution centers, many with more labor intensive ecommerce operations, meant more workers were needed.

¹ Source: CBRE

² Ibid

Details of the 2016 Regional Economic Value of the Port

Use	Direct Employment	Total Employment	Personal Income	Business Activity	State and Local Taxes	Federal Tax Revenue	Total Tax Revenues
Bulk	3,129	11,044	\$ 867.1	\$ 3,318.1	\$ 136.2	\$ 214.0	\$ 350.2
Breakbulk	179	491	\$ 38.3	\$ 134.8	\$ 5.8	\$ 9.0	\$ 14.7
Roll-On/Roll-Off	1,279	3,216	\$ 233.8	\$ 782.7	\$ 32.4	\$ 55.1	\$ 87.4
Container	29,628	68,619	\$ 4,861.7	\$ 15,348.2	\$ 627.7	\$ 1,106.2	\$ 1,733.8
Cruise	3,490	5,021	\$ 290.4	\$ 748.2	\$ 53.5	\$ 60.0	\$ 113.5
Warehousing	166,657	261,141	\$ 14,914.4	\$ 33,188.7	\$ 1,400.0	\$ 3,301.5	\$ 4,701.5
Freight Forwarding	10,107	17,194	\$ 1,226.8	\$ 2,434.6	\$ 133.5	\$ 236.0	\$ 369.5
HQ and other maritime fcns	5,800	14,746	\$ 1,345.2	\$ 4,160.1	\$ 185.1	\$ 301.0	\$ 486.1
Government	2,752	5,216	\$ 445.6	\$ 1,086.6	\$ 36.8	\$ 95.2	\$ 132.0
Insurance	3,259	7,299	\$ 781.3	\$ 1,933.1	\$ 103.3	\$ 172.0	\$ 275.3
Banking	2,671	5,992	\$ 701.5	\$ 1,701.2	\$ 79.3	\$ 153.6	\$ 232.9
TOTAL ECONOMIC IMPACT	228,951	399,979	\$ 25,706.2	\$ 64,836.3	\$ 2,793.6	\$ 5,703.4	\$ 8,497.0

In millions of 2017 dollars

Note that the total impacts include direct, indirect and induced effected.

The New York/New Jersey Port Industry Generates Significant Economic Impacts throughout New York and New Jersey

The New York/New Jersey Port Industry encompasses a wide range of activities, including physical movements, information and financial flows, transportation arrangements and the work of public agencies. These activities take place throughout New York and New Jersey and extend into Pennsylvania, primarily the Lehigh Valley area.

State of New Jersey

In the State of New Jersey, the Port Industry supports:

- 200,350 direct jobs
- 344,470 total jobs in New Jersey
- Nearly \$21 billion in personal income
- More than \$53.8 billion in business income
- Nearly \$7 billion in federal, state and local tax revenues, with local and state tax revenues of more than \$2.2 billion and federal tax revenues of nearly \$4.8 billion

New Jersey saw the construction of millions of square feet of industrial and distribution centers, with occupancy rates greatly increasing. Indeed, as 2016 progressed, demand for industrial space appeared to accelerate. Many ecommerce operations located or expanded in the state. Production facilities also located and expanded in New Jersey. The “perfect trifecta” noted in the 2014 economic impact report – a growing economy, high population density and expansion of ecommerce combined with extensive multi-modal infrastructure – has made New Jersey a leading location for such operations.

344,470 total jobs in the State of New Jersey



New York City

In New York City, the Port Industry supports:

- 17,420 direct jobs
- 35,860 total jobs in the city
- Nearly \$3.6 billion in personal income
- More than \$8.4 billion in business income
- Close to \$1.2 billion in federal, state and local tax revenues, with local and state tax revenues of more than \$450 million and federal tax revenues of more than \$702 million

**More than
\$8.4 billion in
business income**

New York City saw increases in freight forwarding, distribution and insurance industry workers.

State of New York

In the State of New York, the Port Industry supports:

- 23,490 direct jobs
- 47,960 total jobs in the State
- Nearly \$4.2 billion in personal income
- Close to \$10.2 billion in business income
- More than \$1.4 billion in federal, state and local tax revenues, with local and state tax revenues of more than \$555 million and federal tax revenues greater than \$845 million

**47,960
total jobs in
New York State**

The New York State impacts include the New York City impacts, as well as activity in Long Island and other parts of the state. New York also benefits from the ripple effects of port industry suppliers and workers in the state.

Lehigh Valley

In the Lehigh Valley area of Pennsylvania, the New York-New Jersey port industry supports warehousing and distribution center activities estimated to include:

- 18,330 direct jobs
- 29,490 total jobs in the four Lehigh Valley counties included in the region
- More than \$1.4 billion in personal income
- Nearly \$3.3 billion in business income
- Close to \$420 million in federal, state and local tax revenues, with local and state tax revenues of nearly \$130 million and federal tax revenues of more than \$290 million.

**More than
\$1.4 billion in
personal income**

Similar to New Jersey, the Lehigh Valley area has seen millions of square feet of industrial space developed and occupied since 2014.





Appendix A: Port Industry Definitions

This section provides definitions for the Port Industry Terminology.

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 long. 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

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

Cargo moves inland in a variety of ways, including:

- **Long Distance Truck** – The fee charged by trucking firms for the inland movement of the 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

VESSEL ACTIVITIES	TERMINAL ACTIVITIES	TRANSACTION ACTIVITIES	INLAND MOVEMENT ACTIVITIES
Pilotage, Tugs, Provisions, Fuel, Crew Shore Leave, etc.	Stevedoring, Passenger Services, Inspections, Immigration, etc.	Hotels, Restaurants, Local Attractions and Other Visitor Activities In The Port Area	Private Car, Taxi/Limo, Bus/Transit/Airline, Walking, etc.



Appendix B: Background on the Economic Impact Methodology

The information used in this assessment was provided by New York Shipping Association, the Port Authority of New York and New Jersey, New York City Economic Development Corporation, and many port partners. Data from the 2016 US Census County Business Patterns on such sectors as freight forwarding, finance and insurance was used, along with industrial space information from CBRE, NAI and field work.

The 2016 Port Industry analysis continues the use of an IMPLAN multi-region economic impact model customized to reflect the New York-New Jersey-Pennsylvania region. This is the same economic impact model that has been used since the 2012 analysis. The current analysis and results are in 2017 (current year) dollars. Please note that some definitions and impacts will differ from economic impact studies prior to 2012, which used a different input-output model as a base.

The IMPLAN model includes economic data, enables multi-regional and county-level assessments and is used by public agencies throughout the United States, 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>.

Multi-Regional Input-Output (MRIO) models capture the economic impacts occurring in several connected economic regions, along with “trade flows,” which 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 the state rather than to New Jersey itself.

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 does not overlap with other regions. 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, impacts could be counted more than once.

- 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:

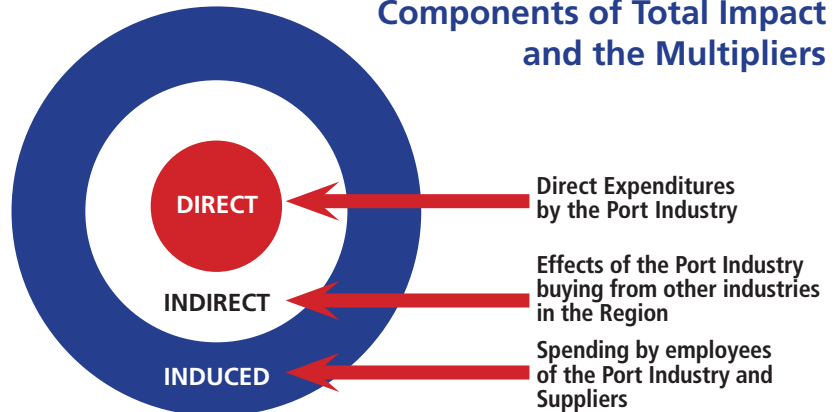
- **Direct** – The spending at the site of the economic activity. Direct effects are the focal point of an impact analysis.
- **Indirect** – The purchases of goods and services by suppliers. By definition, the first round of indirect impacts includes the purchase of supplies and services that are required 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 items such 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 equals sales. For retail and wholesale trade, output equals 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.

Components of Total Impact and the Multipliers

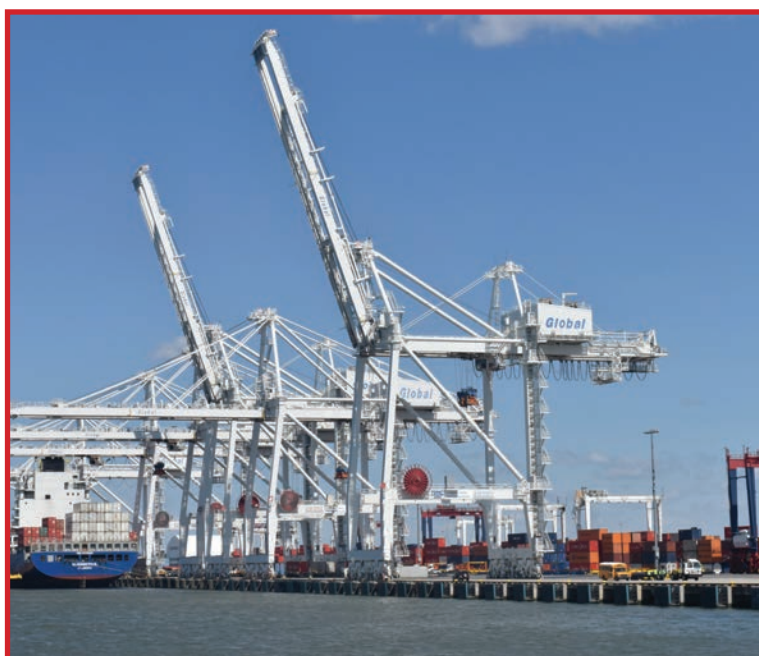


Background on Input-Output Analysis

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 more than 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 input-output (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 U.S. 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 U.S. economy since 1939.



The models can be quite detailed.

The current U.S. 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.





New York Shipping Association, Inc.



*New York/New Jersey
Port Employers and Ocean Carriers*

333 Thornall Street
Suite 3A
Edison, NJ 08837
(732) 452-7800 Phone
(732) 452-6315 FAX
www.nysanet.org

 @NYSANEWS