

THE ECONOMIC IMPACTS OF THE WEST COAST PORTS



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Economic Impacts of the West Coast Deepwater Ports

The West Coast port range is a major gateway of international waterborne trade between the United States and world areas. The ports located in California, Oregon and Washington provide the key international linkages between the United States consumer, industrial, and agricultural sectors and the world. As international trade has grown, the importance of the West Coast ports, in context of the logistics supply chain, has clearly emerged, particularly with respect to the current unprecedented growth in containerized imports from Asia. Not only does the growing international Trans-Pacific trade provide jobs and economic stimulus in the West Coast region, but these port gateways and the cargo they handle support the industrial, retail, and agricultural sectors throughout the United States. The continued success of these ports is essential to the stability and growth of the entire United States economy, and the West Coast port sector has emerged as a key element in the entire international logistics supply chain.

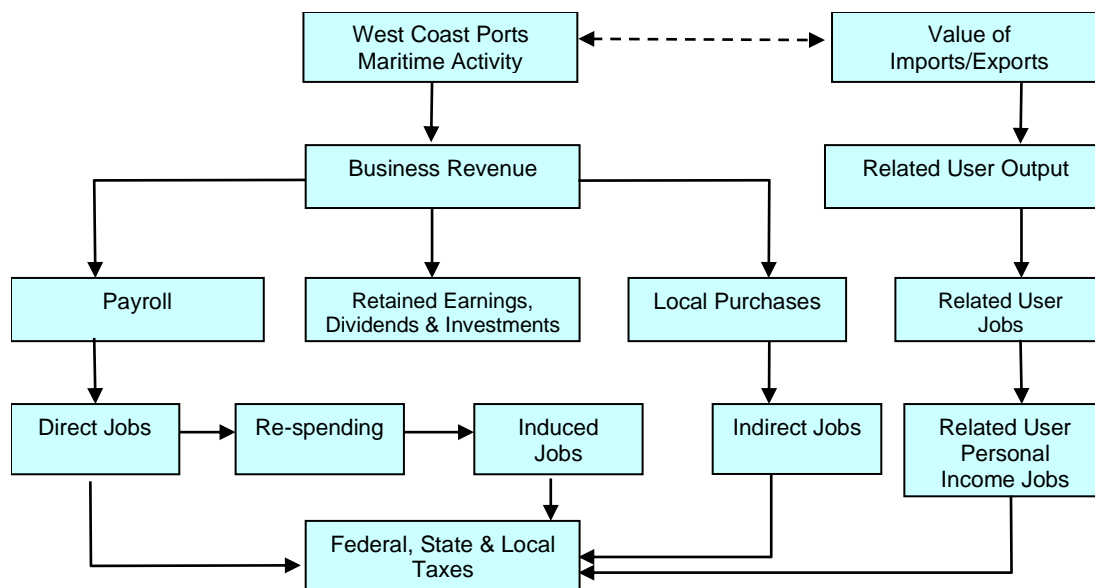
It is the purpose of this discussion paper to highlight the economic importance of the West Coast port range, both regionally and nationally, to identify the importance of the containerized cargo market served by these ports, and to provide an economic model structure to assess changes in the volume of cargo moving via the West Coast ports due to economic, policy and structural changes including loss of volume to other coastal ranges due to the interruption of the international supply chain due to capacity constraints at West Coast ports.

Economic Impact Definitions

The cargo and vessel activity at the West Coast Ports generate economic activity by providing employment and income to individuals, tax revenues to local and state governments as well as the federal government, and revenue to businesses engaged in handling, shipping, and receiving cargo via the Port. Exhibit 1 illustrates the flow of economic impacts throughout the West Coast economy. As this exhibit shows, activity at the West Coast ports (i.e., the handling of cargo and the servicing of vessels) initially creates business revenue to firms providing those cargo handling and vessel services. This revenue is in turn used for several purposes:

- To hire employees to provide the goods and services;
- To pay stockholders dividends, retire debt, and invest;
- To buy goods from other firms; and
- To pay federal, state, and local taxes.

Exhibit 1
Flow of Economic Impacts Generated by West Coast Ports



The hiring of employees generates personal income. This personal income is spent throughout the state, local and national economy to purchase goods and services. This re-spending of income is known as the multiplier effect, which in turn creates induced jobs throughout the economy. Finally, state and local taxes are paid by those directly employed due to port activity and those employed as a result of the in-state purchases of goods and services by those individuals directly employed.

As demonstrated in the above exhibit, and the previous discussion, the flow of economic impacts throughout an economy creates four separate and non-additive types of impacts.

1. Employment Impact

The employment impact consists of direct jobs, induced jobs, indirect jobs and related jobs. The servicing of the vessels and the handling and processing of cargo at the West Coast ports generate the direct employment impact. These direct jobs would not exist in the absence of cargo and vessel activity at the marine terminals. The induced jobs are supported by the purchases of goods and services by those directly employed and would also cease to exist if the direct jobs were discontinued. Hence, the induced jobs are dependent upon the direct jobs and the associated level of wages and salaries, as well as the resulting local purchases made by those directly employed (direct jobs) by activity at the ports.

In addition to the direct and induced jobs, another type of employment impact supported by seaport activity is the indirect job impact. These indirect jobs are generated in the local, state and national economies by the purchases of goods and services by the firms which provide the direct jobs.

The last component of the employment impact is the related job impact. Related jobs are jobs with shippers/consignees using the marine terminals for the export and import of cargo. However, these shippers/consignees also use other ports and are not completely dependent upon the West Coast ports. The level of employment with these firms is driven by the demand for the firms' products, not because the specific West Coast ports are used. Therefore, these related jobs are not dependent upon port activity, and their degree of dependence on the West Coast marine terminals is less than the other components of the job impact¹. Furthermore, should the marine terminals not be available to these importers and exporters located on the West Coast in the longer term, logistics costs will likely increase from the use of other more distant ports such as those in Western Canada, as well as the U.S. East and Gulf Coast ports, which could result in the relocation of the importers and exporters from the states of California, Oregon and Washington areas in closer proximity to the ports that would be used, such as East and Gulf Coast ports as well as Canadian and Mexican Pacific ports.

2. Wages and Salaries Impact

The wages and salaries impact (or the personal income impact), is derived from three sources. First, the ***direct personal income impact*** is the measurement of the wages and salaries generated by port activity and paid to those holding the direct jobs. As the result of in-state consumption purchases made by the direct employees who received the wages and salaries, a ***re-spending/personal consumption*** impact also occurs in the state as well as national economies. This re-spending/personal consumption impact is known as the personal income multiplier effect, which generates the induced jobs. An ***indirect wage and salary impact*** is estimated as part of this study in order to capture the wage and salary income received by those indirectly employed due to the purchases by the firms' dependent upon the cargo moving via the West Coast ports. An estimate is also developed for the wages and salaries received by the related users.

3. Direct Revenue Impact

The direct business revenue impact measures the sales generated by firms engaged in handling and transporting cargo through the West Coast ports. A portion of this direct revenue generated by the maritime activity is then used to pay wages and salaries to those holding the direct jobs and to purchase goods and services to support port activity.

A measure of the total value of economic activity created in the states of California, Oregon and Washington in which each port is located is developed to demonstrate the magnitude of the value of the economic activity in the region supported by the port activity. In addition, the measure of the total economic value to the U.S. economy is similarly quantified.

4. Tax Impacts

The tax impacts measure the state and local tax revenues generated by port activity in each state, while the federal tax impacts are quantified to demonstrate the economic impact in terms of tax

¹The related jobs, income, value of output and taxes should not be used when evaluating the incremental economic impacts of specific port projects or the impacts of changes in cargo volume.

revenue to the federal government. These local, state and federal taxes are paid by both corporations and those holding the direct, induced, indirect and related jobs. The tax revenue impacts include the following types of taxes:

- State taxes, including personal and corporate income tax, state sales and use taxes, motor fuel tax, vehicle registration tax, and miscellaneous taxes
- Local taxes, including the local share of the income tax and property tax, as well as local retail taxes
- Federal taxes including federal income and corporate taxes.

Economic Sectors Impacted by Port Activity

Shipments and receipts of cargo through the West Coast marine terminals generate economic activity in various business sectors of the state economy. Specifically, the following economic sectors are involved in providing cargo and vessel handling services at each of the ports. These are the:

- Surface Transportation Sector
- Maritime Service Sector
- Port Related Users

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.

1. The Surface Transportation Sector

The surface transportation sector consists of the railroad and trucking industries. These sectors are responsible for moving the various cargoes between the marine terminals and their inland origins and destinations. Truck is typically used to move the cargo locally and regionally, while rail is used to move cargo, to and from out of state inland origins and destinations. The trucking industry job impacts include not only the drivers, but dispatchers, mechanics, and administrative employees of national and local trucking firms, as well as owner operators. The rail industry includes crew, as well as yard employees, maintenance, dispatchers, sales, and administrative employees supported by activity at the West Coast ports.²

2. The Maritime Service Sector

This sector consists of numerous firms and participants performing functions related to the following maritime services:

- Cargo Marine Transportation
- Vessel Operations
- Cargo Handling
- Federal, State, and Local Government Agencies
- Banking and Admiralty/Maritime Law Firms
- Maritime Engineering/Construction Services

² The trucking industry impact does not include the drivers of yard equipment within the marine terminal, as these are included with the ILWU/terminal impacts.

A brief description of the major participants in each of these categories is provided below:

- Cargo Marine Transportation - Participants in this category are involved in arranging inland and water transportation for export or import freight through the West Coast marine terminals. The freight forwarder/customhouse broker arranges for the freight to be delivered between the marine terminals and inland destinations, as well as the ocean transportation, and handles cargo documentation. This function performed by freight forwarders and customhouse brokers is most prevalent for general cargo commodities. For bulk cargo, arrangements are often made by the shipper/receiver, and the cargo passes over private docks.
- Vessel Operations - This category consists of several participants providing vessel services including:
 - Steamship agents - provide a number of services for the vessel as soon as it enters the Port, including arranging for pilot tug assist services, for medical and dental care of the crew, and for ship supplies. Agents are also responsible for vessel documentation
 - Pilots – provide navigation services to ensure safe transit of vessels between the harbor entrance and docks
 - 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
 - Bunkering firms - provide fuel to the vessels
 - Marine surveyors - inspect the vessels and the cargo
 - Launch services - provide transportation for the crew between land and vessel
 - Chemical testing services - test cargo, such as coal, for proper chemical composition, water content, etc.
 - Shipyards/ship repair firms - provide repairs, either emergency or scheduled
- Cargo Handling - this category involves the physical handling of the cargo at the Port between the land and the vessel. Included in this category are the following participants:
 - Longshoremen - are members of the International Longshore and Warehouse Union (ILWU), and are involved in the loading and unloading of cargo from the vessels, as well as handling the cargo prior to loading and after unloading inside the terminals. With the exception of petroleum and certain dry bulk cargoes, the members of the ILWU handle the loading and unloading and terminal operations at the West Coast ports.
 - Stevedoring firms - manage the longshoremen and cargo-handling activities.
 - Terminal operators - are often stevedoring firms who operate the maritime terminals where cargo is loaded and off-loaded.
 - Warehouse operators/distribution centers - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots. This category also includes transload operations as well as near port distribution centers that are dependent upon the container operations.

- Container leasing and repair firms - provide containers to steamship lines and shippers/consignees and repair damaged containers. Also included are operators of chassis pools.
 - Container consolidators/NVOCC - consolidate containerized cargo as well as full containers in order to achieve favorable transportation rates for their customers
 - Automobile service firms - service new automobiles after they are off-loaded from the vessels and are often terminal operators as well
-
- Government Agencies - this service category involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at the Port. U.S. Customs and Border Protection, U.S. Department of Labor, U.S. Department of Agriculture, and U.S. Department of Commerce employees are involved. In addition, both civilian and military personnel with the U.S. Coast Guard and the U.S. Army Corps of Engineers have been included. Port administration employees are included in this category as well.
 - Banking and Admiralty/Maritime Law Firms - provide legal and financial services such as letters of credit to ocean carriers as well as importers/exporters.
 - Maritime Engineering/Construction Services – This category includes engineers, architects and consultants who provide a wide spectrum of services to the maritime industry, including terminal design, naval architect services, and planning services. Also, this category includes a wide range of service providers, including environmental firms, security firms, and firms providing fumigation services.

3. Port Related Cargo Users

Related user impacts are jobs, income, economic activity and taxes with shippers and consignees of containerized cargo, autos, break bulk cargo such as steel slabs and structures, project cargo such as wind energy equipment, bulk agricultural products dominated by export grain, as well as other dry bulk such as aggregates, ores, coke, and liquid bulk cargoes such as crude petroleum, petroleum products and chemicals moving via the marine cargo terminals. This related user impact incorporates the distribution and supply chain aspects of the shipper and consignee operations as well as value added services. These jobs include the direct, induced, and indirect jobs created at each level of production of an export cargo produced in each West Coast state, as well as in the U.S., and the total jobs associated with an imported product consumed in-state for the West Coast states (as well as for the entire U.S. for the national impact) either as a final consumption good or as an intermediate or primary raw material used by industries within the state. For example, all aspects of the distribution chain associated with an imported container carrying consumer products are included in the related job impacts (with the exception of the transload operations and fulfillment centers located near each port that are totally dependent on the marine cargo), from the time the cargo arrives at the off-port distribution center to its final sales at a retail outlet. This includes the actual distribution center operations such as repackaging, sorting, labeling, repairs, etc.; as well as the services supplied in support of the distribution center activity such as technical support, maintenance and repair services, utilities, supplier locations, etc. The aspects of the distribution chain from the discharge of the containers from a ship through the container terminal to its initial destination (i.e., regional distribution

center within the state or transload operation) are included in the port-generated direct, induced, and indirect jobs, not the related impacts, and excluded from related impacts.

It should be emphasized that these users are related to the West Coast port marine terminals and if these facilities were not available, the users could ship and receive cargo via other ports. In fact, the majority of these users currently use multiple ports for export and import. Furthermore, the level of employment with the related users is driven by the demand for the products produced by these firms, and not as the result of providing cargo handling or vessel support services at the marine terminals. In the long run, if these users could no longer ship and receive their goods through the West Coast terminals, they would face an increase in logistics costs. Therefore, it is possible that these importers and exporters could relocate their businesses outside the state to be closer to other ports should the West Coast terminals no longer be available for use or provide a competitive logistics supply chain.

Income, value of economic activity (which measures the revenue generated at each stage of the logistics supply chain outside the port complex), and state, local and federal taxes are also estimated for the related users based on the value and volume of cargo moved through each of the West Coast ports and the associated impact metrics for the export producers and the import consumers. The direct, induced and indirect impacts associated with each cargo type for which related impacts are estimated are subtracted from the related impacts to avoid double counting.

Impact Methodology

Martin Associates has conducted over 750 seaport economic impact studies throughout the United States and Canada, including economic impact studies for the majority of the ports in California, Oregon and Washington. Martin Associates developed individual seaport models for the 27 West Coast deepwater ports in order to assess the economic impacts that are generated by these ports in terms of total cargo throughput at the marine terminals, including terminals operated by the International Longshore and Warehouse Union (ILWU), as well as the terminals not operated by the ILWU, which are primarily handling petroleum and certain dry bulk cargoes³. The impacts are then isolated for the cargo and vessels calling the terminals operated by members of the ILWU, and finally the impact of containerized cargo at the ILWU facilities are quantified. The impacts are also estimated at the state level as well as nationally.

These models are based on a series of more than 5,000 interviews with terminal operators, maritime service firms, government agencies, conducted by Martin Associates, and reflect operational metrics for the terminals located in the 27 West Coast port jurisdictions, including terminal productivity by commodity type, ILWU vs. terminals not operated by the ILWU, inland modal share (truck vs. rail), average truck trips per day per driver, intermodal rail operations, transload operations, etc., as well as the evolving size of the container ships that have been deployed at the key West Coast container terminals. In addition, based on these past and current economic impact studies of seaports

³The economic impacts of the non-ILWU terminals are included in the analysis to measure the *total* economic impact of the West Coast ports on the U.S. and the regional economies. The comparison of the total economic impacts of all marine terminals on the West Coast with the impacts generated by the cargo activity handled by ILWU operated terminals underscores the importance of the ILWU terminals when compared to the total economic impacts generated by cargo activity at all marine terminals, including those operated by non-ILWU workers.

throughout the United States, relationships have been developed for revenue per ton as well as per container and per automobile where relevant, and direct jobs per revenue for the specific types of firms included in the maritime services sector (such as agents, chandlers, marine construction firms, surveyors for cargo and vessels, freight forwarders, etc.). Wages are based on actual survey data updated for 2021, and the re-spending impact is based on the most recent personal income multiplier for the water transportation sector as developed for the states of California, Oregon and Washington, and the United States by the U.S. Bureau of Economic Analysis. The induced and indirect models are based on data developed for each West Coast state from such data sources as the U.S. Bureau of Labor Statistics and the U.S. Bureau of Economic Analysis. Similar models were used by Martin Associates in 2018 to estimate the total economic impact of the U.S. deepwater ports on the United States Economy, for the American Association of Port Authorities, and in 2019 to estimate the economic impacts of the San Pedro Bay Port Complex.

The impacts are estimated for the fiscal year 2021 ending June 30, 2021, and reflect the partial unprecedented growth in containerized cargo at the West Coast ports that began in June 2020, and has continued at an accelerating rate through October 2021. Separate impacts were estimated for all cargo and vessel operations at all marine cargo terminals, whether they were ILWU operated or not at the following 27 port districts.

- Aberdeen/Grays Harbor
- Anacortes
- Benicia
- Crockett
- Eureka
- Everett
- Kalama
- Longview
- Long Beach
- Los Angeles
- North Bend/Coos Bay
- Oakland
- Olympia
- Port Angeles
- Port Chicago
- Port Hueneme
- Portland
- Rainier
- Redwood City
- Richmond
- San Diego
- San Francisco
- Seattle
- Stockton
- Tacoma
- Vancouver
- West Sacramento

The economic impacts of the ports on the states in which they are located are estimated for various levels of operations:

- Economic impact supported by the vessel and cargo activity moving via all marine terminals at the 27 West Coast deepwater ports, regardless of type of operation (by ILWU or non-ILWU labor),
- Economic impact supported by the vessel and cargo activity moving via ILWU marine terminals only at the 27 West Coast deepwater ports, and
- Economic impact supported by the **containerized cargo** only at the ILWU container terminals at the 27 West Coast deepwater ports.

These impacts are quantified by geographical area. First the cargo and vessel activity at all marine terminals (regardless of ILWU or non-ILWU operation) within a port district are calculated at the state level in which each port is located (states of California, Oregon and Washington) and at the national level. Secondly, the impacts of cargo and vessel activity only at ILWU operated terminals are quantified at both the state level and national level. Finally, the economic impacts of containerized cargo only at the West Coast ports are estimated, for each state in which the ports are located, as well as at the national level. Exhibit 2 presents the economic impacts of the marine cargo and vessel activity on the West Coast for the three separate cargo scenarios.

Economic Impact Results

Exhibit 2 presents the economic impacts on the U.S. economy of the marine cargo and vessel activity at the West Coast marine terminals for the three levels of operation – the impact of the cargo and vessel activity at all the West Coast marine terminals, the marine cargo and vessel activity at the West Coast ports moving via the terminals operated by the ILWU, and the economic impacts of the containerized cargo and associated vessel activity at the West Coast ports.

Exhibit 2
Economic Impacts of Marine Cargo and Vessel Activity at the West Coast Ports on the National Economy

	All West Coast Marine Terminals	ILWU Terminals Only	Container Terminals Only
JOB			
Direct	160,956	143,833	124,033
Induced	290,988	255,716	219,166
Indirect	<u>84,251</u>	<u>69,858</u>	<u>53,643</u>
Subtotal	536,195	469,407	396,842
Related User Jobs	<u>11,986,827</u>	<u>11,800,268</u>	<u>11,271,799</u>
Total Jobs	12,523,022	12,269,675	11,668,641
PERSONAL INCOME			
Direct	\$12,682	\$11,115	\$9,572
Re-spending/Local Consumption	\$50,245	\$44,037	\$37,923
Indirect	<u>\$4,873</u>	<u>\$4,047</u>	<u>\$3,147</u>
Subtotal	\$67,800	\$59,200	\$50,642
Related User Income	<u>\$433,656</u>	<u>\$423,903</u>	<u>\$405,149</u>
Total Income and Consumption (Millions \$)	\$501,456	\$483,102	\$455,791
TOTAL ECONOMIC VALUE			
Direct Business Revenue	\$56,680	\$46,586	\$41,655
Re-spending/Local Consumption	\$50,245	\$44,037	\$37,923
Related User Output	<u>\$1,870,442</u>	<u>\$1,764,562</u>	<u>\$1,698,749</u>
Total Economic Value (Millions \$)	\$1,977,367	\$1,855,186	\$1,778,326
STATE AND LOCAL TAXES			
Direct/Induced/ Indirect State/Local Taxes	\$5,814	\$5,039	\$4,327
Related User State/Local Taxes	<u>\$37,260</u>	<u>\$36,194</u>	<u>\$34,735</u>
Total State and Local Taxes (Millions \$)	\$43,073	\$41,233	\$39,062
FEDERAL TAXES			
Direct/Induced/ Indirect Federal Taxes	\$9,226	\$7,969	\$6,871
Related User Federal Taxes	<u>\$104,249</u>	<u>\$99,990</u>	<u>\$95,934</u>
Total Federal Taxes (Millions \$)	\$113,475	\$107,959	\$102,805

Source: Martin Associates

In fiscal year 2021, the cargo and vessel activity at all marine terminals located within the 27 West Coast deepwater port districts supported 12.5 million jobs in the U.S. economy, of which cargo and vessels activity at the ILWU terminals supported 12.3 million jobs in the U.S., or about 93percent of total West Coast deepwater port impacts. With respect to the impact of containerized cargo, the ILWU terminals handling the West Coast containerized cargo at the marine terminals located in the 27 West Coast deepwater port districts supported 11.7 million of the jobs nationwide.

Of 12.5 million jobs:

- **160,956 direct jobs** were created by the marine cargo activity at all the marine terminals in the deepwater West Coast ports. Of which 143,833 direct jobs were created by the cargo at the ILWU operated terminals, and 124,033 direct jobs were created by containerized cargo moving via the deepwater West Coast ports.
- **290,988 induced jobs** were supported in the U.S. as the result of the re-spending of the direct income and the value of the local consumption purchases of \$50.3 billion. The activity at the ILWU terminals supported 255,716 induced jobs nationally of which 219,166 induced jobs were support throughout the U.S. as the result of the containerized cargo at the West Coast ports.
- **84,251 indirect jobs** within the nation were supported by the \$6.5 billion of purchases of goods and services by the firms employing the direct job holders. Of these indirect jobs supported throughout the U.S., 69,858 were supported by the purchases by the firms handling the cargo moving via the ILWU facilities, and 53,643 were supported by the containerized cargo handled at the West Coast ports.
- **About 12 million related user jobs** throughout the United States are with users of the marine terminals located at the 27 West Coast deepwater ports. Of these user jobs, the marine cargo at the ILWU terminals supported 11.8 million jobs, while the containerized cargo and associated vessel activity supported 11.3 million jobs throughout the U.S. These jobs are classified as user jobs since they are with the importers and exporters using the marine terminals. As demonstrated, the majority of the jobs are associated with the movement of containerized cargo at the West Coast ports.

The West Coast deepwater ports supported \$501.5 billion in personal wage and salary income and personal consumption activity throughout the U.S., of which the ILWU terminals supported \$483.1 billion and the containerized cargo at the West Coast ports supported \$455.8 billion:

- The 160,956 directly employed individuals received \$12.7 billion of personal wage and salary income, for an average salary of \$78,900.
- As a result of the multiplier effects of using a portion of this income for local purchases, \$50.2 billion in induced income (re-spending) and local consumption expenditures were created within the U.S.⁴ Those 84,251 indirectly employed received \$4.9 billion of indirect income.
- An additional \$433.7 billion in wages and salaries was received as income by the related users.

The cargo and vessel activity at the West Coast ports supported nearly \$2 trillion of total economic value throughout the U.S. which represents about 8.7 percent of the 2nd Quarter 2021 Gross Domestic Product (GDP) of the U.S. The ILWU terminals supported \$1.9 trillion of total economic value to the U.S., of which containerized cargo activity supported

⁴The re-spending impact includes the local purchases by those directly employed as well as the consumption expenditures. Therefore, the total re-spending and consumption impact cannot be divided by 290,988 induced jobs to estimate induced salary, as this would be an overestimation of personal income.

\$1.8 trillion of total economic value, or 7.8 percent of the total U.S. GDP. The total economic value of the West Coast deepwater ports to the national economy consists of:

- **\$1,870.4 billion value of the output** that is created with the related users due to the cargo moving via the marine terminals at the West Coast ports, and 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 marine terminals and are consumed within the nation, as well as the revenue generated at each stage of delivery of a consumer import (via the West Coast ports) to final sales.
- **\$56.7 billion of direct business revenue to the providers of the marine services at the West Coast ports.**
- **\$50.2 billion of re-spending and personal consumption expenditures**, which is not part of the direct revenue impact but is in addition to the direct wage and salary impact and the direct revenue impact.

The marine cargo and vessel activity at the West Coast ports supported \$43.1 billion of state and local tax revenues throughout the U.S., and \$113.5 billion of federal tax revenue

As Exhibit 2 demonstrates, the containerized cargo and associated vessels handled at the ILWU operated facilities account for the majority of the total economic impacts generated by all terminals at the West Coast deepwater ports, accounting for about 75 percent of the direct, induced and indirect impacts in the U.S. economy, and for 93 percent of the related user impacts.

Exhibit 3 shows the regional impacts within the three West Coast states in which the ports are located. The total marine cargo and vessel activity at the West Coast deepwater ports supported 5.6 million jobs in the three states, of which the marine cargo and vessel activity at the ILWU terminals generated 5.5 million jobs and the containerized cargo at these ports supported 5.3 million jobs in the three states. Overall, the marine cargo and vessel activity supported \$1,144.0 billion of total economic value to the economies of California, Washington and Oregon, accounting for about 27% of the combined 2nd quarter 2021 GDP of the three West Coast states. Containerized cargo activity accounted for about 75 percent of the direct, induced and indirect impacts in the three states, and for more than 95 percent of the related user impacts within the West Coast region.

Exhibit 3
Economic Impacts of Marine Cargo and Vessel Activity at the West Coast Ports on the Regional Economy (California, Oregon and Washington)

	All West Coast Marine Terminals	ILWU Terminals Only	Container Terminals Only
JOBS			
Direct	160,956	143,833	124,033
Induced	181,523	159,776	137,363
Indirect	<u>62,194</u>	<u>52,042</u>	<u>40,300</u>
Subtotal	404,674	355,650	301,696
Related User Jobs	<u>5,167,466</u>	<u>5,119,591</u>	<u>4,947,172</u>
Total Jobs	5,572,139	5,475,241	5,248,867
PERSONAL INCOME			
Direct	\$12,682	\$11,115	\$9,572
Re-spending/Local Consumption	\$30,733	\$26,918	\$23,322
Indirect	<u>\$3,753</u>	<u>\$3,122</u>	<u>\$2,417</u>
Subtotal	\$47,168	\$41,156	\$35,312
Related User Income	<u>\$184,716</u>	<u>\$183,745</u>	<u>\$176,919</u>
Total Income and Consumption (Millions \$)	\$231,884	\$224,900	\$212,230
TOTAL ECONOMIC VALUE			
Direct Business Revenue	\$56,680	\$46,586	\$41,655
Re-spending/Local Consumption	\$30,733	\$26,918	\$23,322
Related User Output	<u>\$1,056,564</u>	<u>\$999,440</u>	<u>\$976,362</u>
Total Economic Value (Millions \$)	\$1,143,978	\$1,072,944	\$1,041,339
STATE AND LOCAL TAXES			
Direct/Induced/ Indirect State/Local Taxes	\$5,122	\$4,422	\$3,819
Related User State/Local Taxes	<u>\$20,126</u>	<u>\$19,824</u>	<u>\$19,274</u>
Total State and Local Taxes (Millions \$)	\$25,249	\$24,246	\$23,093

Direct Job Impacts by Job Category

The ability to identify the direct jobs by type of job is critical when evaluating the demand for job skills required at a marine terminal, and how specific jobs categories could be impacted in the future due to changes in terminal operations such as the increased automation of the marine terminals, changes in the share of containers that move intermodally to other parts of the United States, and changes in the volume and market share of total containerized cargo that moves through the West Coast ports.

Exhibit 4 identifies the direct jobs generated by job category for marine cargo and vessel activity at all West Coast deepwater ports, as well as the number of direct jobs generated by cargo

handled at the ILWU terminals only, and for the containerized cargo only handled at the ILWU terminals at the West Coast ports.

Exhibit 4
Direct Jobs Generated by Cargo and Vessel Activity at the West Coast Ports

JOB CATEGORY	All West Coast	ILWU	
	Marine Terminals	Terminals Only	Containerized Cargo Only
RAIL INDUSTRY	7,370	7,047	4,769
TRUCKING INDUSTRY	52,981	49,116	45,761
TERMINAL OPERATORS	34,957	23,130	16,020
ILWU	15,405	15,405	12,888
PILOTS/TUGS	1,453	1,269	658
MARITIME SERVICES*	8,587	7,957	5,924
FREIGHT FORWARDERS	7,821	7,773	7,488
DISTRIBUTION CENTER/WAREHOUSE/TRANSLOAD	28,019	28,019	27,515
GOVERNMENT/INSURANCE/BANKING/LEGAL	4,363	4,118	3,010
TOTAL DIRECT JOBS	160,956	143,833	124,033

*Includes Steamship Agents, Chandlers, Surveyors, Marine Construction

As shown in Exhibit 4, the greatest job impact is with the trucking industry, followed by jobs with terminal operators, and then with distribution centers/warehousing and transloading/cross dock operations and on-site fulfillment centers. Focusing on activity at the ILWU operated facilities at the West Coast ports, the largest impacts are with the trucking industry, followed by direct jobs with distribution centers/warehouses and transload facilities. Direct jobs supported in the trucking industry account for about 30 percent of all direct jobs generated at the West Coast deepwater ports. These jobs include not only drivers, but the dispatchers, mechanics and administrative employees associated with trucking and port drayage operations, but do not include the drivers within the marine terminals, as these are jobs with the ILWU. The majority of the trucking industry jobs and the distribution center/warehouse/transload/fulfillment sector jobs are supported by the container operations at the ILWU operated terminals. The direct jobs generated in the trucking industry and warehouse/transload/fulfillment sector account for 54 percent of the direct jobs supported by the ILWU operations at the West Coast ports, and about 59 percent of the direct jobs generated by container operations at the West Coast ports. Jobs with terminal operations, including those with petroleum refineries located at West Coast ports, accounted for about 22 percent of the direct jobs generated at all West Coast deepwater ports' marine terminals (including the private marine terminals handling petroleum products). Focusing only on the impacts generated by the ILWU terminals, the terminal operators' share of direct jobs generated by maritime activity at the West Coast marine terminals operated by ILWU labor ports falls to 16 percent, and further to 13 percent of the direct jobs generated by containerized cargo moving via the ILWU facilities at the West Coast ports. The marine cargo and vessel activity at the ILWU facilities at the West Coast ports supported 15,405 full time equivalent members of the International Longshore and Warehouse Union in fiscal year 2021, which accounts for about 9.6 percent of the total direct job impacts generated by marine cargo handled at all marine terminals within the West Coast deepwater port districts, about 10.7 percent of the direct

jobs generated by the ILWU operations at the West Coast ports, and 10.4 percent of the direct jobs generated by the containerized cargo operations.

Appendix A shows the Economic Impacts of the West Coast ports for California, Washington and Oregon, by type of operation, as well as the distribution of the direct jobs by job category and type of operation.

Appendix A: Regional Economic Impacts

Economic Impacts of the Port Activity of the California Ports on the State of California

	All West Coast Marine Terminals - California	ILWU Terminals Only - California	Container Terminals Only - California
JOB			
Direct	120,804	108,181	98,790
Induced	136,611	119,904	107,848
Indirect	<u>44,410</u>	<u>36,612</u>	<u>31,539</u>
Subtotal	301,825	264,697	238,177
Related User Jobs	<u>4,266,701</u>	<u>4,228,520</u>	<u>4,186,798</u>
Total Jobs	4,568,526	4,493,217	4,424,975
	0	0	0
PERSONAL INCOME	0	0	0
Direct	\$9,452	\$8,250	\$7,396
Re-spending/Local Consumption	\$24,108	\$21,041	\$18,863
Indirect	<u>\$2,697</u>	<u>\$2,212</u>	<u>\$1,900</u>
Subtotal	\$36,256	\$31,503	\$28,159
Related User Income	<u>\$149,640</u>	<u>\$148,106</u>	<u>\$146,534</u>
Total Income and Consumption (Millions \$)	\$185,897	\$179,610	\$174,693
TOTAL ECONOMIC VALUE			
Direct Business Revenue	\$43,187	\$35,065	\$33,018
Re-spending/Local Consumption	\$24,108	\$21,041	\$18,863
Related User Output	<u>\$911,821</u>	<u>\$861,535</u>	<u>\$856,071</u>
Total Economic Value (Millions \$)	\$979,116	\$917,641	\$907,952
STATE AND LOCAL TAXES			
Direct/Induced/ Indirect State/Local Taxes	\$4,154	\$3,572	\$3,213
Related User State/Local Taxes	<u>\$17,144</u>	<u>\$16,794</u>	<u>\$16,718</u>
Total State and Local Taxes (Millions \$)	\$21,297	\$20,366	\$19,930

Distribution of the Direct Job Impacts Generated by the Port Activity of the California Ports on the State of California

JOB CATEGORY	All West Coast		
	Marine Terminals - California	ILWU Terminals Only - California	Containerized Cargo - California
RAIL INDUSTRY	3,667	3,598	3,233
TRUCKING INDUSTRY	46,330	43,685	41,551
TERMINAL OPERATORS	14,705	5,414	1,665
ILWU	12,262	12,262	10,991
PILOTS/TUGS	579	535	369
MARITIME SERVICES*	6,491	6,162	5,248
FREIGHT FORWARDERS	7,217	7,208	6,955
DISTRIBUTION CENTER/WAREHOUSE/TRANSLOAD	26,891	26,891	26,591
GOVERNMENT/INSURANCE/BANKING/LEGAL	2,664	2,427	2,188
TOTAL DIRECT JOBS	120,804	108,181	98,790

*Includes Steamship Agents, Chandlers, Surveyors, Marine Construction

Economic Impacts of the Port Activity of the Pacific Northwest Ports on the States of Oregon and Washington

	All West Coast Marine Terminals - PNW	ILWU Terminals Only - PNW	Container Terminals Only - PNW
JOBS			
Direct	40,153	35,652	25,243
Induced	44,912	39,872	29,514
Indirect	<u>17,784</u>	<u>15,429</u>	<u>8,761</u>
Subtotal	102,849	90,953	63,519
Related User Jobs	<u>900,765</u>	<u>891,071</u>	<u>760,374</u>
Total Jobs	1,003,614	982,024	823,893
PERSONAL INCOME			
Direct	\$3,230	\$2,866	\$2,176
Re-spending/Local Consumption	\$6,626	\$5,877	\$4,459
Indirect	<u>\$1,056</u>	<u>\$910</u>	<u>\$517</u>
Subtotal	\$10,911	\$9,652	\$7,152
Related User Income	<u>\$35,076</u>	<u>\$35,638</u>	<u>\$30,384</u>
Total Income and Consumption (Millions \$)	\$45,987	\$45,291	\$37,537
TOTAL ECONOMIC VALUE			
Direct Business Revenue	\$13,494	\$11,521	\$8,637
Re-spending/Local Consumption	\$6,626	\$5,877	\$4,459
Related User Output	<u>\$144,743</u>	<u>\$137,905</u>	<u>\$120,291</u>
Total Economic Value (Millions \$)	\$164,862	\$155,302	\$133,387
STATE AND LOCAL TAXES			
Direct/Induced/ Indirect State/Local Taxes	\$969	\$850	\$606
Related User State/Local Taxes	<u>\$2,983</u>	<u>\$3,030</u>	<u>\$2,556</u>
Total State and Local Taxes (Millions \$)	\$3,951	\$3,880	\$3,163

Note: The impacts of the Washington and Oregon deepwater ports on the states of Washington and Oregon are combined for confidentiality reasons.

Distribution of the Direct Job Impacts Generated by the Port Activity of the Pacific Northwest Ports on the States of Oregon and Washington

JOB CATEGORY	All Port Facilities - PNW	ILWU Facilities - PNW	Containerized Cargo - PNW
RAIL INDUSTRY	3,703	3,449	1,536
TRUCKING INDUSTRY	6,652	5,431	4,209
TERMINAL OPERATORS	20,252	17,715	14,355
ILWU	3,143	3,143	1,898
PILOTS/TUGS	874	734	289
MARITIME SERVICES*	2,097	1,795	676
FREIGHT FORWARDERS	604	565	534
DISTRIBUTION CENTER/WAREHOUSE/TRANSLOAD	1,128	1,128	924
GOVERNMENT/INSURANCE/BANKING/LEGAL	1,699	1,692	822
TOTAL DIRECT JOBS	40,153	35,652	25,243

*Includes Steamship Agents, Chandlers, Surveyors, Marine Construction

Note: The impacts of the Washington and Oregon deepwater ports on the states of Washington and Oregon are combined for confidentiality reasons