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THE JONES ACT REVISITED AGAIN – COMMENTS ON THE HILLBERRY-JIMENEZ RECENT STUDY¹

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Main Findings & Highlights

1. The recent study by Hillberry and Jimenez (2024) revives the long-standing issue of the Jones Act and its impact on Puerto Rico. Compared to other studies, their analysis brings a firm econometric basis to examine trade at the commodity and country level, and a novel approach of measuring the tariff-equivalent compensating valuation to the economy of Puerto Rico.
2. The study has some limitations that may constitute further study avenues. For example, it attributes changes to the trade composition to the Jones Act without accounting for differences in the economic structure of production, the size of the economy and other factors such as US Tariff policy.
 - a. The argument that the composition of the JA fleet serving the island “imposes disproportionate trade costs on imports of goods that rely on these types of vessels that are in short supply”, is flawed, due to the dedicated service that exists between Jacksonville and San Juan. In addition, the use of containers in Caribbean routes has increased over the past several years.
 - b. The composition of Puerto Rico's economy has shifted towards services, which also imply changes in the trade composition. It is unclear how the study addresses and separates the Jones Act from these endogenous changes.
 - c. Puerto Rico is also subject to the US Tariff structure, and any tariff changes may also impact foreign imports to Puerto Rico. This will also impact the trade structure beyond any opportunity costs from the Jones Act. This is true also for wage levels and other Non-Jones Act related costs (for example, insurance, wharfage fees, inland transportation costs)
3. The trade composition has changed significantly over the past few years, which may limit some findings from the study given that their reference point is up to 2016.
 - a. The share of foreign inbound container traffic (loaded) increased from 23.6% in 2014 to 28.3% in 2022. Foreign trade also outpaced total domestic container traffic, with a compound growth rate of 4.8% between 2013 and 2022, versus 1.9% for total domestic container traffic for the same period.
 - b. In value terms, however, the distribution shift was inverted, with the value share of foreign imports decreasing from 56.1% in 2012 to 42.3% in 2023.
 - c. Foreign trade also shifted in value from airborne to seaborne from 2009 through 2021, decreasing from 59.2% to 48.9%, before rebounding to 52.3% in 2023. Therefore, the benefits of higher-valued imports from foreign countries being brought through seaborne trade and enjoying the exemption from Jones Act is diminished.
4. The analysis assumes that the counterfactual scenario for Jones Act would be the actual costs from international carriers and does not consider their compliance with US laws when serving Puerto Rico, and how this would impact their cost structure.
 - a. Several studies have highlighted that most of the cost differential between US and foreign-flagged carriers would likely dissipate if foreign carriers had to comply with the US laws (GAO, 1998; Beason et. al., 2015; USITC, 2004).
 - b. Trade routes would likely change, given the relatively small size of Puerto Rico's maritime trade in terms of the global liner shipping routes. Shipping routes use a hub-and-spoke network to carry out global container trade, and Puerto Rico would likely be a spoke in

this network, which would imply another vessel sailing from the Hub port where the merchandise is brought into the island. In contrast, Jones Act carriers operate on a closed loop with Puerto Rico, with no hubs nor intermediate stops. This allows for "just-in-time" delivery due to the dedicated service. Moving away from Jones Act carriers would likely impact the availability of "just-in-time" delivery services, which would imply that companies that make use of said service would need to make up the difference in timings with additional inventory space, with all its associated costs.

5. Jones Act carriers also provide advantages in terms of container size. For example, Jones Act carriers to Puerto Rico have a significant concentration of 53' containers, compared to the standard 40ft container used by foreign carriers. The cost economies of using bigger containers are not accounted for in the analysis by Hillberry and Jimenez. Neither is the dedicated service factor.
6. The route from Jacksonville to San Juan provided price stability compared to other routes. An analysis by Ernst & Young (2022) considered increases in freight rates in the Caribbean routes from Jacksonville, including Puerto Rico. The analysis found that "Freight prices in the Caribbean were more stable during the pandemic than the global average, and rate increase on Jones Act lanes were comparable with the rest of the region" (p. 2). For the Jacksonville to San Juan route, rate increases "were marginally lower compared to other Caribbean rate increases" (p. 5).

Introduction

The literature concerning the impact of the Jones Act on Puerto Rico can be traced as far back as 1965² in a study by Clower and Harris, regarding the operating cost differences between U.S. and foreign-flagged ships. That same year, Pesquera [1965] estimated the cost at \$48.3 million dollars in her analysis of maritime transportation between the U.S. and Puerto Rico. Later research undertaken by the Federal Maritime Commission (FMC, 1970) suggested cost differences of 10-20% between foreign containerships and those operating in the United States.³ In 1975, Kaplan estimated a 10-15% difference between U.S. and foreign ship life-cycle costs.⁴ However, that same study argued that vessels' cost composition had changed

due to the rise in fuel prices and cargo handling costs, thus shrinking the cost gap between U.S. and foreign ships.⁵ The U.S. Department of Commerce (1979), however, in its well-known study on the economy of Puerto Rico, was skeptical regarding the scope and long-term benefits of a liberalized shipping regime.⁶

Other recent studies have further reduced the impact of the Jones Act on Puerto Rico. Quiñones (1990) attempted to explain changes in consumer prices due to the Jones Act, but only found a small increase in particular products.⁷ Dávila (2002) measured the cost differential in exports and imports attributable to the Act, but his results were statistically insignificant at standard confidence levels.

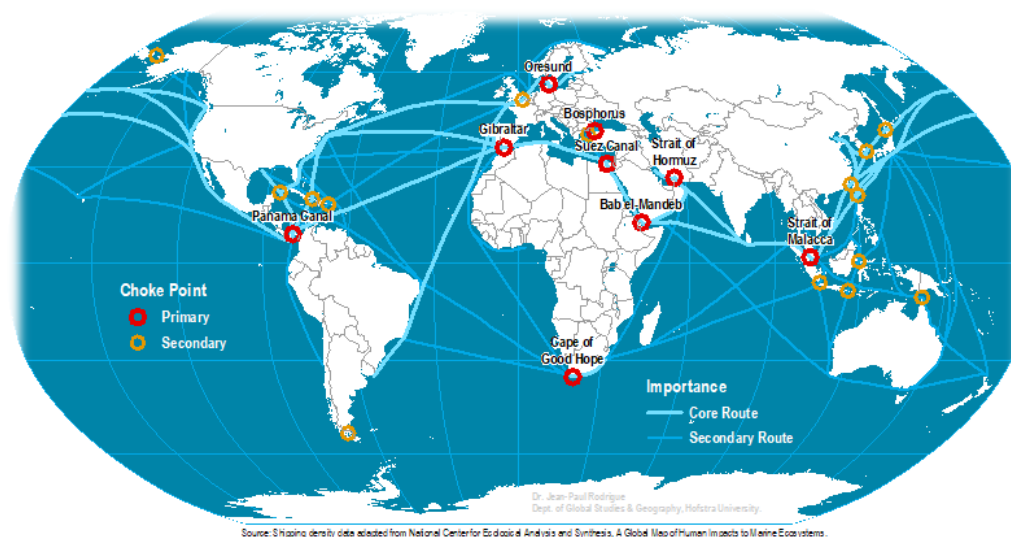
The recent study by Hillberry and Jimenez (2024), brings again into the limelight the decades-long issue of the Jones Act and its impacts on Puerto Rico.⁸ It presents an interesting approach to the cost estimation as tariff-equivalent within the trade model. This sets the analysis on firm theoretical grounds, by examining the expected costs at the commodity and country level to derive the general direct, indirect, and induced impact from the Act. The study used the year 2016 as a basis, and many of the variables examined in its assessment have changed significantly since then. However, even considering the base year, the study still presents some limitations which pose avenues for further extending the research before establishing the 'true' cost of the Jones Act.

To provide an adequate background, the following section presents the recent trends in the flows and composition of trade by mode of transportation and origin between Puerto Rico, the mainland, and foreign countries. This is followed by comments on the study and its findings, which includes brief reviews of other studies' findings and other relevant conclusions.

Composition of the flows of maritime traffic – domestic and foreign

Knowledge of the characteristics and recent trends of the flows of maritime traffic between Puerto Rico and the mainland and foreign countries is important to better assess the relevance and impacts of the Jones Act estimated by the researchers. Hillberry and Jimenez evaluate the impacts up to 2016, but recent trends point to divergent conclusions with respect to some of their findings. These will be examined below.

Figure 1: Classification of Maritime Shipping Routes and Strategic Locations



CHOKER POINT

Locations that play a strategic role in the global maritime network.

PRIMARY

Offer limited cost-effective maritime shipping alternatives, which would seriously impair global trade if disrupted.

SECONDARY

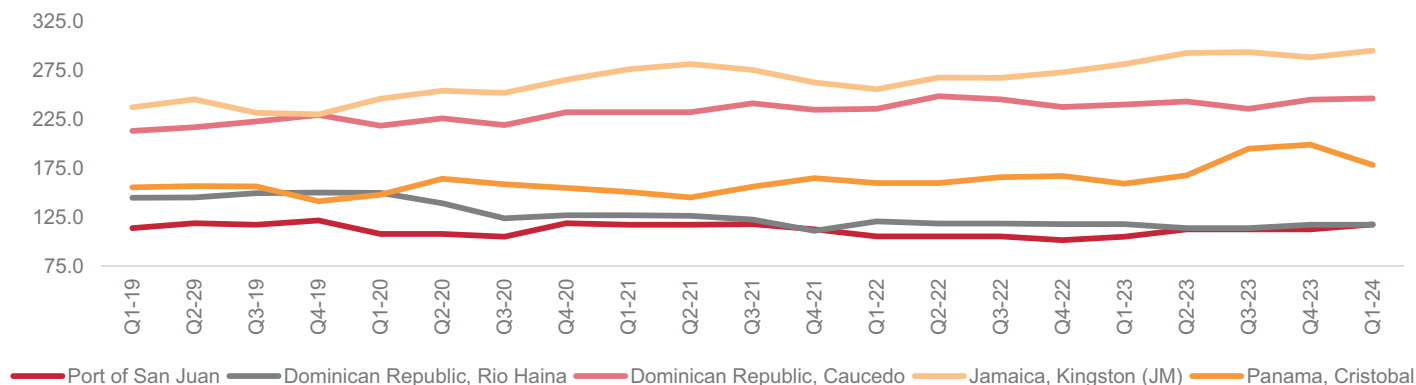
Support maritime routes that have alternatives but would still involve a notable detour.

Source: Ports Economics, Management and Policy. Maritime Shipping Routes and Checkpoints. At: <https://porteconomicmanagement.org/pemp/contents/part1/inter-oceanic-passages/main-maritime-shipping-routes/>

Maritime shipping routes provide the global “Highways” through which goods are traded via the numerous global supply chains. Puerto Rico is part of the Secondary routes. Note that this type of location (Check Point) is described as supporting maritime routes but involves “a notable detour”.⁹

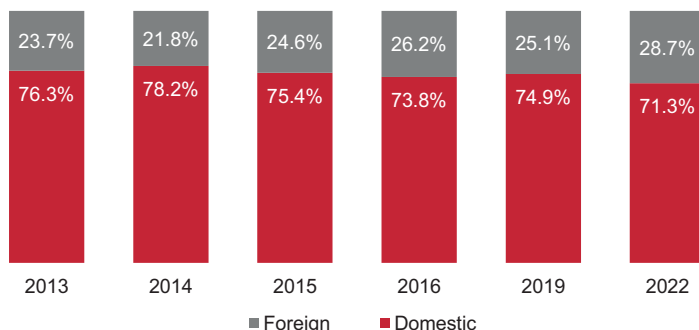
Port activity and seaborne trade are often associated with positive socio-economic effects.¹⁰ San Juan Port does not rank among the top seaports in the region (Caribbean), as measured by the Port Liner Connectivity Index (See Figure 2), but it has performed better, in terms of port operations and vessel availability, than the global average, according to the report by Ernst & Young (2022).^{11, 12} (see Figure 2).

Figure 2: Port Liner Connectivity, San Juan And The Caribbean



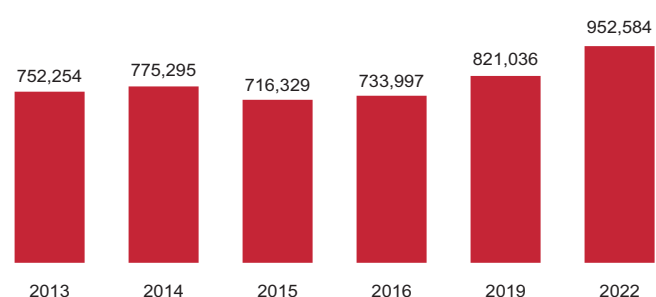
Source: UNCTAD (2024). Port liner shipping connectivity index, quarterly (June 14, 2024). The Port LSCI (PLSCI) reflects a ports' position in the global liner shipping network. A higher value is associated with better connectivity. The Port LSCI is set at 100 for the highest value in the first quarter of (Q1) of 2006.

Figure 3: Puerto Rico's Waterborne Loaded Container Traffic, By Flag (Teus), 2013-2016, 2019, & 2022



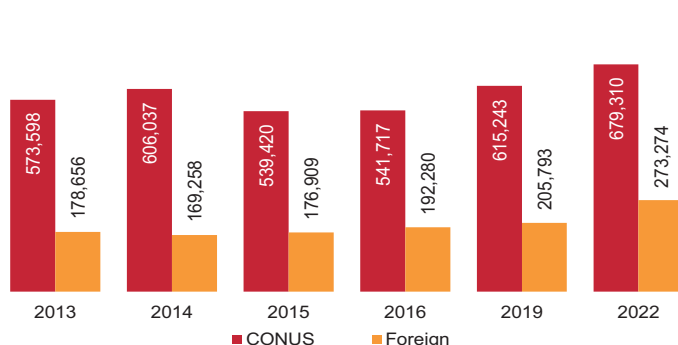
Source: U.S. Army Corps of Engineers Digital Library. Waterborne container traffic.

Figure 4: Puerto Rico's Waterborne Loaded Container Traffic, By Flag (Teus), 2013-2016, 2019, & 2022



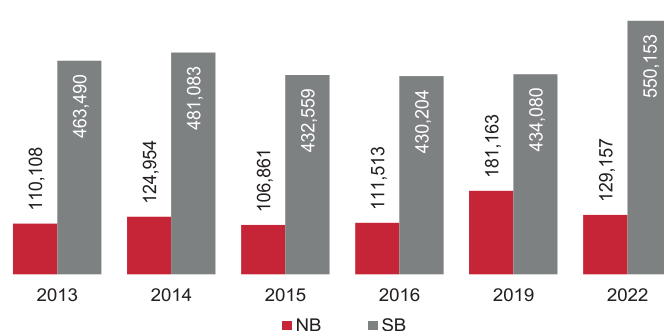
Source: U.S. Army Corps of Engineers Digital Library. Waterborne container traffic.

Figure 5: Puerto Rico's Waterborne Loaded Container Traffic, By Origin, 2013-2016, 2019, & 2022



Source: U.S. Army Corps of Engineers Digital Library. Waterborne container traffic.

Figure 6: CONUS Container Traffic, 2013-2016, 2019, & 2022



Source: U.S. Army Corps of Engineers Digital Library. Waterborne container traffic.

In volume terms (TEUs), the share of domestic traffic in total traffic-loaded container traffic (Inbound and outbound) decreased, from 76.3% in 2013, to 71.3% in 2022, while that of foreign vessels increased, to 28.7%, from 23.7% in 2013. Thus, JA notwithstanding, trade handled by foreign vessels has increased, diminishing whatever negative impacts on domestic prices it might have (see Figure 3).

Total domestic traffic (Loaded) increased at an annual compound rate of 1.9%, while total foreign did so at a higher rate, 4.8%, between 2013 and 2022.

Domestic (Loaded) southbound traffic increased but modestly, at an annual compound rate of 1.9%, and northbound traffic (Loaded) by 1.8% during the same period.

In value terms, by origin, the share of imports from foreign countries went through two phases: increasing between 2009 and 2012, from 45.8% to 56.1%, with the corresponding share of imports from the US declining, and decreasing to 42.3%, while that of the US rose to 57.7% in 2023. This might reflect the weight of airborne trade in foreign imports vs. those from the US, and changes in its share, as will be seen in the next two figures.

The share of inbound container traffic (TEUs) of foreign-flagged vessels increased from 25.3% in 2013 to 28.3% in 2022, with the inbound traffic share of domestic vessels decreasing from 74.7% in 2013 to 71.7% in 2022.

By mode of transportation, in terms of value, between 2009 and 2016 the share of airborne rose, from 51.7% to 58.1%, with the share of those by sea decreasing, from 48.3% to 41.9%. That changed afterwards, when the share of seaborne transportation decreased to 47.8% by 2023, while that of seaborne trade rose to 52.2%. That could reflect the fact that, between fiscal years 2015 and 2023, the value of exports of pharmaceuticals and medicines (NAICS 3254), dependent on imports, and for which airborne transportation is important, decreased, from \$48.9 billion, to \$46.6 billion, accounting for 30.0% of the total reduction in exports of manufacturing exports.¹³

The value of seaborne trade, though, increased considerably between 2016 and 2023, by \$10.7 billion, whereas that for airborne imports rose by \$1.7 billion, likely a reflection of the significant increases in maritime freight rates since 2020.

Figure 10 presents the distribution of the value of foreign imports by mode of transportation. It is interesting to note that the share of airborne mode, compared to seaborne was quite high until 2021, when it decreased to 48.9%, from 59.2% in 2009, but rose again afterwards, to 52.6% in 2023. So, benefits in terms of value from imports from foreign countries through seaborne trade is diminished.

Tables 1 and 2 illustrates the structure and composition of Puerto Rico's imports from the mainland and foreign countries. The findings have a relevance to the conclusions related to freight with foreign countries.

The first significant finding is related to the composition of the trade with foreign countries in terms of value and mode of transportation (Tables 1 and 2). In the case of the value, over half of imports (52.6%) are airborne, whereas in the case of those from the mainland the share is lower, 44.3%. In both origins, imports of chemical manufacturing (NAICS 325), in which those of pharmaceutical and medicine manufacturing (NAICS 3254) account for a significant proportion in airborne imports. With respect to imports from the mainland, 30.7% come from NAICS sector 311 (Food manufacturing), followed by those from NAICS sector 325.

The argument that the composition of the JA fleet serving the island "imposes disproportionate trade costs on imports of goods that rely on these types of vessels that are in short supply", is flawed, due to the dedicated service that exists between Jacksonville and San Juan.

Figure 7: Distribution of the Value of Merchandise Imports by Origin, 2009-2023

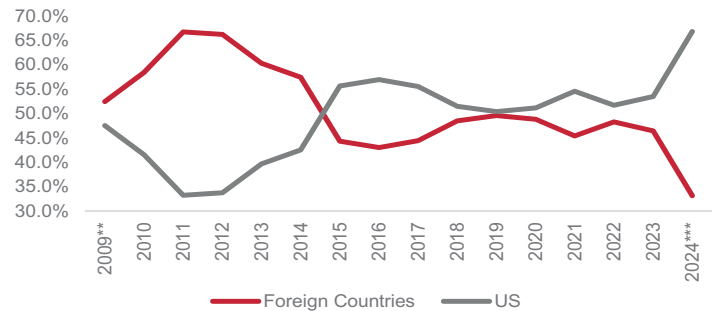
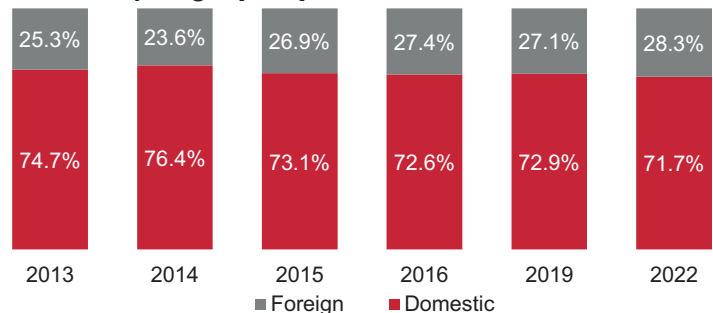
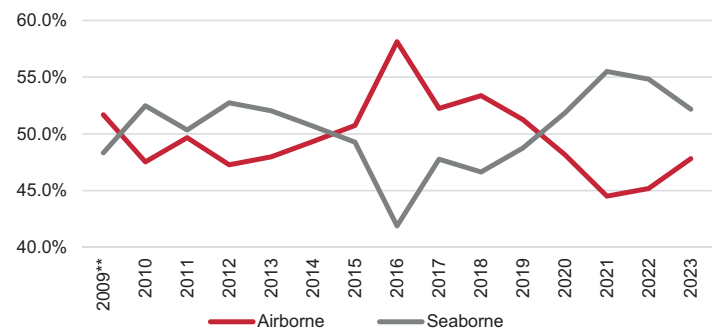


Figure 8: Distribution of Loaded Inbound Container Traffic, by Origin (Teus)



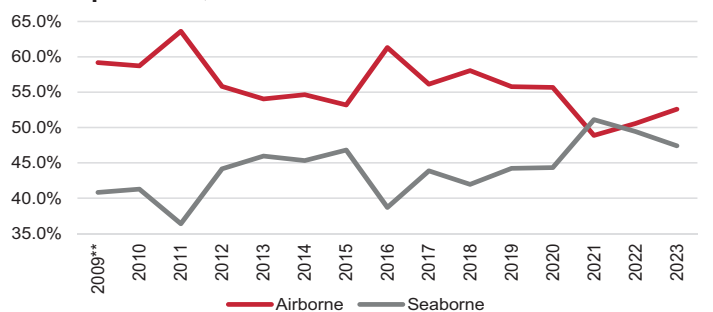
Source: U.S. Army Corps of Engineers Digital Library. Waterborne container traffic.

Figure 9: Distribution of the Value of Merchandise Imports, by Mode Of Transportation, 2009-2023



Source: P.R. Institute of Statistics. Comercio externo de bienes de Puerto Rico desde julio 2009.
* Excluding USVI. ** Since July.

Figure 10: Distribution of Foreign Imports by Mode of Transportation, 2009-2023



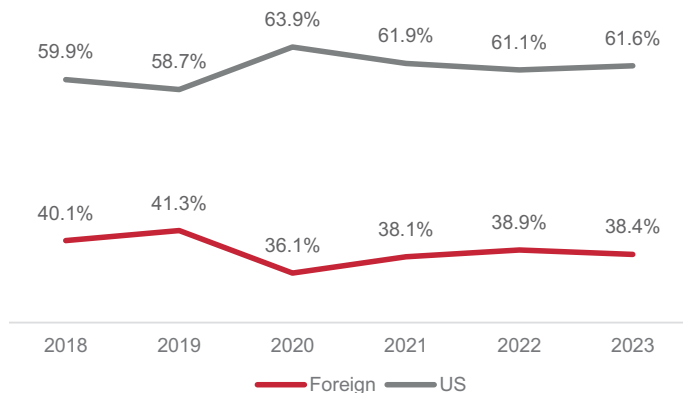
Source: P.R. Institute of Statistics. Comercio externo de bienes de Puerto Rico desde julio 2009.
* Excluding USVI. ** Since July.

Such a consideration, anyway, would have to be expected too from foreign shipping companies servicing Puerto Rico, due to geopolitical factors in Europe and the Middle East, for instance. In addition, the use of containers on the Caribbean routes has increased.

Time of transportation is of the essence in maritime trade. As described before, the dedicated nature of the servicing in the main route serving Puerto Rico from Jacksonville translates into benefits to importers. This is especially true in the case of certain products like food and beverages. For instance, the estimated transit time to ship a container to the Dominican Republic from major ports in Europe is between 30 and 35 days.¹⁴ As illustrated in table 3, the proportion of food and beverages (NAICS 111-115; 311-312) in imports from foreign countries is lower than in those from the mainland (7.5% foreign vs. 14.3% domestic).

Since Puerto Rico is within the US tariff system, changes in US tariffs also have an impact on Puerto Rico's direct imports from foreign countries. Since 2018, with the adoption of the tariff increases to U.S. imports from China under the Trump administration, the directions in Puerto Rico's imports from the mainland and foreign countries has changed. Between 2019 and 2023, the share in seaborne imports (in terms of value) of merchandise from the mainland increased to 61.6%, from 58.7%, whereas that of foreign countries decreased, from 41.3%, to 38.4%, due mostly to lower imports from Southeast Asia.¹⁵ At the same time, the share in foreign imports by mode of transportation that were airborne increased, while those seaborne decreased in the same period (See figure 9).

Figure 11: Distribution by of Seaborne Imports by Origin and Mode of Transport, 2018-2023



Source: P.R. Institute of Statistics. *Comercio externo de bienes de Puerto Rico desde julio 2009*. * Excluding USVI.

In the case of the Caribbean, the region examined by the authors, there are problems that affect their maritime transportation facilities, the micro-states (except Jamaica and the Dominican Republic), and at the same time the use of containers: inadequate infrastructure management, tariffs that are low to support services, for instance, which have an impact of their services and type of ships, problems that do not occur in the case of the Port of San Juan.¹⁶ The port of San Juan also has internal dynamics which are reflective not only of external factors such as the Jones Act, but also from internal factors such as the changes in the composition of Puerto Rico's economy.

Figure 13 shows how manufacturing has reduced in share in 2023 compared to 2016. These industrial shifts also impact the demand for commodities, yet do not seem to be taken into consideration in the study. Instead, the authors hypothesize that the cost of the Jones Act is the driving force behind the shifts in cargo composition and mode of transportation.

Table 1: Distribution of Foreign Imports by Industry and Mode of Transportation, 2023

NAICS	Airborne	Seaborne	Value	Dist. %
111	1.5%	98.5%	\$288,164,259	1.3%
112	14.7%	85.3%	\$23,152,674	0.1%
113	0.0%	100.0%	\$1,070,070	0.0%
114	2.3%	97.7%	\$50,404,789	0.2%
211	0.0%	100.0%	\$844,688,389	3.7%
212	0.2%	99.8%	\$187,226,857	0.8%
311	0.1%	99.9%	\$1,057,505,263	4.7%
312	0.6%	99.4%	\$275,752,907	1.2%
313	31.3%	68.7%	\$12,795,241	0.1%
314	6.3%	93.7%	\$37,619,747	0.2%
315	50.0%	50.0%	\$63,549,891	0.3%
316	25.2%	74.8%	\$55,528,355	0.2%
321	0.5%	99.5%	\$49,611,144	0.2%
322	1.1%	98.9%	\$150,894,053	0.7%
323	11.2%	88.8%	\$17,087,772	0.1%
324	0.0%	100.0%	\$2,588,701,729	11.4%
325	92.9%	7.1%	\$11,916,885,061	52.5%
326	8.6%	91.4%	\$384,883,380	1.7%
327	1.0%	99.0%	\$165,559,679	0.7%
331	2.3%	97.7%	\$269,772,858	1.2%
332	3.9%	96.1%	\$169,033,108	0.7%
333	8.7%	91.3%	\$567,770,480	2.5%
334	38.0%	62.0%	\$375,540,593	1.7%
335	8.6%	91.4%	\$589,364,576	2.6%
336	7.8%	92.2%	\$1,412,031,970	6.2%
337	1.0%	99.0%	\$186,359,513	0.8%
339	28.7%	71.3%	\$454,164,765	2.0%
910	0.9%	99.1%	\$821,410	0.0%
930	84.0%	16.0%	\$63,560,395	0.3%
980	46.7%	53.3%	\$417,448,315	1.8%
990	11.5%	88.5%	\$380,720	0.0%
Total	52.6%	47.4%	\$22,677,329,963	100.0%

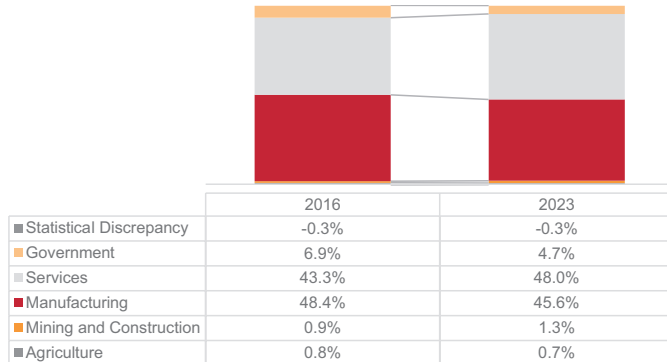
Source: P.R. Institute of Statistics. *Comercio externo desde julio 2009*.

Table 2: Distribution of Foreign Imports by Industry and Mode of Transportation, 2023

NAICS	Airborne	Seaborne	Value (\$Mm)	Dist. %
111	7.3%	92.7%	\$335,994,082	1.1%
112	17.2%	82.8%	\$98,739,826	0.3%
113	6.8%	93.2%	\$4,820,856	0.0%
114	0.2%	99.8%	\$65,975,921	0.2%
115	97.6%	2.4%	\$656,028	0.0%
211	0.0%	100.0%	\$11,257,737	0.0%
212	6.0%	94.0%	\$25,643,897	0.1%
311	0.9%	99.1%	\$3,518,823,688	11.4%
312	0.3%	99.7%	\$415,781,499	1.3%
313	7.1%	92.9%	\$211,053,389	0.7%
314	9.9%	90.1%	\$173,503,686	0.6%
315	10.3%	89.7%	\$462,147,451	1.5%
316	19.0%	81.0%	\$293,582,032	0.9%
321	4.7%	95.3%	\$60,389,620	0.2%
322	4.2%	95.8%	\$371,529,621	1.2%
323	21.9%	78.1%	\$63,051,078	0.2%
324	0.2%	99.8%	\$371,229,009	1.2%
325	79.7%	20.3%	\$12,027,794,598	38.8%
326	19.7%	80.3%	\$941,280,742	3.0%
327	5.7%	94.3%	\$111,709,991	0.4%
331	29.7%	70.3%	\$279,979,772	0.9%
332	18.8%	81.2%	\$620,846,346	2.0%
333	25.2%	74.8%	\$1,149,348,381	3.7%
334	67.6%	32.4%	\$2,501,066,971	8.1%
335	23.6%	76.4%	\$1,687,567,415	5.4%
336	3.7%	96.3%	\$2,488,937,543	8.0%
337	1.5%	98.5%	\$184,250,262	0.6%
339	57.5%	42.5%	\$1,701,709,341	5.5%
910	35.7%	64.3%	\$77,357,167	0.2%
930	2.3%	97.7%	\$272,338,743	0.9%
980	0.0%	100.0%	\$411,932,044	1.3%
990	64.7%	35.3%	\$39,402,673	0.1%
Total	44.3%	55.7%	\$30,979,701,409	100.0%

Source: P.R. Institute of Statistics. *Comercio externo desde julio 2009*.

Figure 12: Distribution of GDP by Industrial Sector, Fiscal Years 2016 and 2023



Source: P.R. Planning Board. *Income and Product Fiscal Year 2023*. Table 10.

Comments on the study and findings

There are several facts and findings that are not considered in the study, which affect their conclusions. We address only some of the most relevant ones.

The first one is related to the issue of comparative costs. A 2011 study prepared by Reeves & Associates found that:¹⁷

...the total area of cost in question for a Jones Act 'premium' is around 20 percent of the total cost of moving goods between the mainland and Puerto Rico. However, a substantial portion of this vessel cost would still be incurred by a foreign flag operator regardless of nationality.

This restates the U.S. Department of Commerce's 1979 study conclusion, that "similarly, only a small fraction of the total cost of Puerto Rican exports to the mainland can be ascribed to the cost differential between U.S. and foreign shipping rates."¹⁸ According to the study, the cost differences in goods between the mainland and Puerto Rico retail prices "... can only be explained in part by the cost of sea transportation. It is also partially attributable to high distribution and marketing costs on the island."

A Government Accountability Office study (2013), done at the request of the Commonwealth of Puerto Rico, also found that because there are many other factors besides the Jones Act that affect freight rates:

"it is difficult to isolate the extent to which freight rates between the U.S. and P.R. are affected by the Jones Act."

Some services between Jones Act and foreign carriers are not comparable, and the degree of substitutability between these has not been estimated. The study also finds that " ... because of cost advantages, unrestricted competition from foreign-flag vessels could result in the disappearance of most U.S.-flag vessels in this trade." But the main cost advantage that foreign carriers have with respect to Jones Act Carriers is a labor-cost advantage. As explained in the GAO report (p. 10), that cost advantage would disappear when foreign carriers would have to comply with the same labor rules and requirements as U.S.-flag container carriers.

Attempts to quantify the economic impacts of the Jones Act have been classified by critics as speculative due to not including all relevant factors.¹⁹ Applicability of the alleged Jones Act premium on overall transportation costs of goods and services has been criticized as well; for example, the U.S. Transportation Institute (2009) noted that higher local freight rates can be explained by the regulatory and economic environment under which U.S. flagged ships operate.

Table 3: Distribution of the Value of Puerto Rico's Merchandise Imports by Origin, 2023

NAICS	U.S.	Foreign	Total	Share	
	Value (\$Mm)	Value (\$Mm)	Value (\$Mm)	% U.S.	% Foreign
111	\$335,994,082	\$288,164,259	\$624,158,341	53.8%	46.2%
112	\$98,739,826	\$23,152,674	\$121,892,500	81.0%	19.0%
113	\$4,820,856	\$1,070,070	\$5,890,926	81.8%	18.2%
114	\$65,975,921	\$50,404,789	\$116,380,710	56.7%	43.3%
115	\$656,028		\$656,028	100.0%	0.0%
211	\$11,257,737	\$844,688,389	\$855,946,126	1.3%	98.7%
212	\$25,643,897	\$187,226,857	\$212,870,754	12.0%	88.0%
311	\$3,518,823,688	\$1,057,505,263	\$4,576,328,951	76.9%	23.1%
312	\$415,781,499	\$275,752,907	\$691,534,406	60.1%	39.9%
313	\$211,053,389	\$12,795,241	\$223,848,630	94.3%	5.7%
314	\$173,503,686	\$37,619,747	\$211,123,433	82.2%	17.8%
315	\$462,147,451	\$63,549,891	\$525,697,342	87.9%	12.1%
316	\$293,582,032	\$55,528,355	\$349,110,387	84.1%	15.9%
321	\$60,389,620	\$49,611,144	\$110,000,764	54.9%	45.1%
322	\$371,529,621	\$150,894,053	\$522,423,674	71.1%	28.9%
323	\$63,051,078	\$17,087,772	\$80,138,850	78.7%	21.3%
324	\$371,229,009	\$2,588,701,729	\$2,959,930,738	12.5%	87.5%
325	\$12,027,794,598	\$11,916,885,061	\$23,944,679,659	50.2%	49.8%
326	\$941,280,742	\$384,883,380	\$1,326,164,122	71.0%	29.0%
327	\$111,709,991	\$165,559,679	\$277,269,670	40.3%	59.7%
331	\$279,979,772	\$269,772,858	\$549,752,630	50.9%	49.1%
332	\$620,846,346	\$169,033,108	\$789,879,454	78.6%	21.4%
333	\$1,149,348,381	\$567,770,480	\$1,717,118,861	66.9%	33.1%
334	\$2,501,066,971	\$375,540,593	\$2,876,607,564	86.9%	13.1%
335	\$1,687,567,415	\$589,364,576	\$2,276,931,991	74.1%	25.9%
336	\$2,488,937,543	\$1,412,031,970	\$3,900,969,513	63.8%	36.2%
337	\$184,250,262	\$186,359,513	\$370,609,775	49.7%	50.3%
339	\$1,701,709,341	\$454,164,765	\$2,155,874,106	78.9%	21.1%
910	\$77,357,167	\$821,410	\$78,178,577	98.9%	1.1%
930	\$272,338,743	\$63,560,395	\$335,899,138	81.1%	18.9%
980	\$411,932,044	\$417,448,315	\$829,380,359	49.7%	50.3%
990	\$39,402,673	\$380,720	\$39,783,393	99.0%	1.0%
Total	\$30,979,701,409	\$22,677,329,763	\$53,657,031,172	57.7%	42.3%
Summary: Shares of Food and Oil & gas extraction					
(111-115; 311-312)	\$4,440,791,900	\$1,696,049,962	\$6,136,841,862	72.4%	27.6%
Extraction (211)	\$11,257,737	\$844,688,389	\$855,946,126	1.3%	98.7%

Source: P.R. Institute of Statistics. Comercio externo desde julio 2009.

In addition, due to the lack of adequate data, many studies have to assume certain economic conditions or operational constraints, which may not hold in practice. The U.S. Government Accountability Office (GAO), in an assessment of a 1995 ITC estimate, stated:

The accuracy of ITC's estimate of the economic impact of the Jones Act is uncertain because of the limitations of the data and the assumptions that ITC used in its analysis. Also, other important factors that were outside the scope of ITC's study, such as the national security and potential federal budget implications, deserve consideration in an evaluation of the benefits and costs of the Jones Act.²⁰

According to GAO (1998), the main difficulty stems from the lack of data to quantify more realistic cost-benefit estimates in both strategic and economic dimensions of the Act. The question of whether the Jones Act is a competitive advantage or disadvantage to firms cannot be clearly resolved.

However, the effects of the Jones Act remain a bone of contention in the literature. For example, the study by Valentin-Mari and Alameda (2012), under a flawed methodology, estimated a cost to Puerto Rico's economy of \$537.2 million attributable to the Jones Act in 2010.²¹ Hillberry and Jimenez estimated it at \$1.4 billion (in 2016 dollars), and Dunham & Associates (2019) at \$1.5 billion.

Data from the U.S. Maritime Administration (MARAD) indicates that the operating costs of U.S. ships were 2.7 times higher than those of foreign-flagged vessels in a 2011 study²² – a typical starting point for denoting a Jones Act cost.

The 2013 GAO study on the impact of the Jones Act on the local economy, unfortunately does not address, in terms of cost estimates the issue, although perhaps its most important finding would be that "The effects of modifying the application of the Jones Act for Puerto Rico are highly uncertain."²³ It also found that is that transportation costs still remain only a part of the overall pricing structure of goods

and services – and the latter also varies by type of good. In this regard it states that the prices of goods sold in Puerto Rico are determined by a host of supply and demand factors, similar to freight rates, and therefore, the impact of shipping costs between the United States and Puerto Rico on the average prices of goods in Puerto Rico is difficult, if not impossible, to determine with precision.²⁴

The aspects of economic impacts and operating costs differences between US-flag and foreign flag carriers have become again issues of contention in the different analysis presented in the past few years, including Puerto Rico. In the estimates on relative costs between both carriers and impacts on prices, foreign-flag carriers would have to comply with several US laws and agreements, which would have an impact on their costs (and freight rates, by extension) if they were to operate in the domestic trade. The findings in an article in the Journal of Maritime Law & Commerce also supports the conclusion that a foreign-flag vessel's costs would rise substantially if operated in U.S. domestic trade in terms of U.S. tax, labor, and employee protection laws.²⁵

The GAO (1998) evaluation, and the Beason et.al. (2015) paper list three specific categories of US laws that could result in higher compliance costs for foreign ships, if the Jones Act were repealed, and that were not considered in the ITC's studies, and in other studies, including those on Puerto Rico's JA trade: Tax laws, labor laws, and employee protection laws. Beason et.al. study is a legal and economic analysis, which explore the validity of the argument that shipping rates in the US domestic shipping trades would drop dramatically if the Jones Act were repealed, an argument also adduced for Puerto Rico, and questions the "ability of anyone to accurately quantify the "cost" of the Jones Act, as attempted in the various studies on the subject by the US International Trade Commission (ITC).²⁶

A key aspect of a comparative cost analysis with international carriers, and ignored by Hillberry and Jimenez, is the one related to the size of the equipment in use, as Estudios Técnicos, Inc. (2018) study demonstrated. This is an area in which JAC carriers provide a cost advantage to local businesses, compared to foreign carriers servicing the domestic routes, as they concentrate on 40's container, while PR's trade use more of 53's containers.²⁷ Estimating the number of containers that would be required by downsizing 45, 48 and 53ft containers to 40ft ones, and the cost economies due to the use of such bigger containers, these would be additional costs that would be incurred by businesses with JAC carriers if they have to use only 40ft containers, the norm with international carriers. The inland cost (freight) economies (US/PR) that businesses receive with the use of bigger containers was estimated at around \$35.3 million per year, with a corresponding savings in rates of \$82.0 million. Total economies derived from the use of bigger containers were estimated at \$120.8 million or \$424.0/FEU (Forty-foot equivalent unit).²⁸

Total inland costs (freight) were estimated at \$313.7 million, with total transportation costs estimated at \$1,017.5 million. Inland costs represent 31.0% of the total, with U.S. costs accounting for 22.4%, and SJU inland costs 8.5% respectively. Maritime costs (TT) represent the bulk of the total costs, 69.2%. On the other hand, the cost impact due to international service was estimated at \$79.3 million.²⁹

Moreover, one important limitation of the studies on the Jones Act impacts on the US economy done by the US International Trade Commission (ITC), and on Puerto Rico (including Hillberry and Jimenez)) is that actual shipping costs of foreign carriers are used or assumed as the counterfactual scenario, and not the costs they would incur if they serve the domestic routes.

The analysis starts by exploring the movements of ships in the Caribbean, their characteristics, and what type prevail the most by type of cargo, pointing to the prevalence of container ships

and barges in JA fleet, compared to other routes in the Caribbean. This contributes to raise costs of the JA ships, especially in the case of heavy and break-bulk cargo. They also present the hypothesis that the JA "has shifted PR's industrial structure away from sectors that use sea-shipped imports as imports," that is, a preference towards airborne transportation for pharmaceutical and medicine manufacturing.³⁰

Hillberry and Jimenez compared the characteristics of shipping vessels in Caribbean routes with those that serve Puerto Rico. Their conclusion is that "the fleet serving Puerto Rico is dominated by container ships and barges, and "that other types of cargo vessels that serve the rest of the Caribbean are almost absent from the PR route."³¹ This conclusion does not take into consideration two facts: one, that it reflects differences in the composition and types of goods related to the economic development of PR vs. that of the rest of the Caribbean islands, and, secondly; more cargo in the Caribbean Sea region is transported via container transportation, so much that it explains the development of the transshipments ports in Kingston and the Dominican Republic. According to a study by Corey et.al. (2022), "the proportion of Caribbean imports transported seaborne is between 90-95.0%, and by 2018, the container traffic in the Caribbean Sea region (in terms of TEUs), increased by 7.7%, representing 7.1% of the total global container traffic."³²

The issue of freight rates, and the differences between those of JA ships and foreign transports, is one of the key aspects that several of the studies on the subject. At the same time in their analysis and estimates of impacts the studies assume same rates under no JA scenario, when that is not quite so. In both instances, rates reflect the published ones, when in practice they are negotiated with the client, eventually being lower. According to Sánchez and Wilmsmeier (2009), "Freight rates do not necessarily express real transport costs, because they are market driven".³³

Table 4: Distribution of the Value of Puerto Rico's Merchandise Imports by Origin, 2023

	US	Foreign	Total
Industrial goods	\$29,635,582,435	\$20,800,412,085	\$50,435,994,520
Agricultural goods	\$506,186,713	\$362,791,792	\$868,978,505
Minerals and fuels	\$36,901,634	\$1,031,915,246	\$1,068,816,880
Total	\$30,178,670,782	\$22,195,119,123	\$52,373,789,905

Source: P.R. Institute of Statistics. Comercio externo desde julio 2009. Note: Excludes NAICS sectors 910 through, as they correspond to returned or second hand merchandise.

Through a compensating-variation calculation, they estimated "a mean JA-tariff equivalent" of 30.6% for final products, which points to a cost of \$1.4 billion (in 2016 dollars), or \$203.0 per inhabitant per year.³⁴ According to the Office of the U.S. Trade representative, about 94.0% of U.S. imports by value of merchandise are industrial goods, with a trade-weighted average import tariff rate of 2.0%.³⁵ In the case of Puerto Rico's imports from foreign countries, in 2023 about 94.0% were in this category(excluding minerals and fuels), and 4.6% minerals and fuels. Moreover, according to the USTR, one-half of all U.S. industrial goods imports enter duty free.³⁶ It is not unreasonable to assume a similar pattern for Puerto Rico's imports from foreign countries, which would imply a reduced impact on the tariff side to the total value and costs of foreign imports.

On this subject, the report by Ernst & Young (2022) provides an interesting comparative contrast of rate increases in the Caribbean routes from Jacksonville, including Puerto Rico.³⁷ The analysis considers increases in rates, not the rates itself. Although they relate to the COVID-19 period and afterwards, and after that in the Hillberry-Jimenez study, the report found the following: (1) "Freight

price increases in the Caribbean were more stable during the pandemic than the global average, and rate increases on JA lanes were comparable with the rest of the region.³⁸; (2) freight price increases between the US East Coast and the Caribbean, between 2019 and 2021, were more stable, increasing by an average of 19.0%, vs. a global average increase of 522.0%³⁹; for the Jacksonville to San Juan route, rate increases "were marginally lower compared to other Caribbean rate increases".⁴⁰

Another limitation from the analysis stems from the fact that the trade routes would likely change, given the relatively small size of Puerto Rico's maritime trade. It is unlikely that a shipping route such as Puerto Rico, where most containers are filled but leave empty, would be attractive enough to merit a hub in a liner shipping route; it would be rather a spoke in the trade network, with secondary vessels shipping most of the containerized merchandise. In contrast, the current service provided by Jones Act carriers is a closed loop, where the vessels go to the port of call (e.g., Jacksonville, FL) and sail directly to Puerto Rico with no in-between stops or secondary vessels. This allows for "just in time" delivery where trucks can simply await the merchandise directly at the port.

The difference in routing types when shifting from Jones Act to foreign vessels would also likely impact the availability of "just-in-time" delivery services, which would decrease regularity. Regularity of service in the Caribbean varies from "Highly interconnected routes, on one side, and the Small Island States that are heavily dependent on a few limited feeder services, on the other"; this is not the experience of Puerto Rico, which due to Jones Act carriers has regularity of service and shorter distances from its main imports markets. The difference in timings and regularity would have to be borne by firms via additional inventory space. Puerto Rico's inventory space is made more expensive than many jurisdictions due to the high cost of electricity, the tax on moveable property and the high cost of creating additional warehousing space. Moreover, warehousing also implies increased ancillary costs such as land transportation, permitting, and other costs which, when included in the analysis, also shrink the cost gap between the Jones Act and foreign carrier trade.

There are also external market factors related to the global shipping industry that have to be considered. Concentration in container shipping markets is an issue very much relevant in global trade, as it has an impact on international maritime freight rates. The availability of choice of foreign carriers may also be hindered when dealing with a relatively small trade jurisdiction in the Transatlantic trade routes. This would likely imply that equilibrium costs for shipping to Puerto Rico would be higher than average given the higher market power of shipping companies that would service the Puerto Rico routes. Global competition and other market forces have fostered consolidation trends and oligopolistic market structures in the Container Liner Shipping Industry (CLSI). According to Sys (2009), the CLSI's market structure lies between a formal collusively oriented oligopoly and a more tacitly collusive one, concluding that globally, "the container shipping industry is confronted with increased concentration". Other researchers also classified the industry as an oligopoly, due to tacit cartel-like price operations.

International trade is not subject to normal U.S. antitrust laws. Although the Shipping Act of 1984/OSRA 1998 does serve as a framework for antitrust, it also gives greater ability to collaborate compared to US antitrust laws. Jones Act carriers are fully subject to the US framework, while carriers in international trades have more latitude to collude without violating legal standards.⁴¹ The study by Chwałowicz (2018), for instance, found at that time (2018) that "the market was still competitive, although heading towards a direction in which several large entities will dictate the conditions to other participants", thus potentially limiting the benefits of lower freight rates from foreign carriers to Puerto Rico.⁴² In 2024, 47.0% of the global handling of cargo (in TEU's terms) is concentrated in just three shipping companies: MSC, Maersk, and CMA CGM Group.⁴³ The above suggests that eliminating the Jones Act would not place Puerto Rico in a competitive market but instead one characterized by significant concentration.

Notes:

1. This study draws from several studies prepared by Estudios Técnicos, Inc., and Estudios Técnicos, Inc./Reeves & Associates, in 2013 and 2018, regarding maritime trade. See Sources Consulted for a list of these studies.
2. In the Appendix there is a list of some of studies done on the subject.
3. Federal Maritime Commission (1970), p. 164.
4. Jacob J. Kaplan (1975), pp. 1, 21.
5. Ibid.
6. U.S. Department of Commerce. Vol. 1 (1979), p. 214.
7. Martha Quiñones (1990); Héctor R. Dávila (2002).
8. Russell Hillberry, Manuel J. Jiménez (2024). Economic Consequences of Cabotage Restrictions: The Effect of the Jones Act on Puerto Rico. Policy Research working paper; no. WPS 10780; PROSPERITY Washington, D.C.: World Bank Group (May 2024).
9. We were able to obtain the database on imports of Puerto Rico used in the Hillberry-Jimenez study, as provided by the Institute of Statistics of Puerto Rico. We also use the data on U.S. maritime container traffic by ports from the U.S. Corps of Engineers.
10. Kahuina Miller and Tesuro Hyodo (2022). Assessment of port efficiency within Latin America. *Journal of Shipping and Trade*, 7:4 (2022). Pp. 3-5. At: <https://doi.org/10.1186/s41072-021-00102-5>
11. Ernst and Young (2022). Shipping performance and economic contributions of Jones Act routes in the Caribbean. Prepared for the Transportation Institute (July 12, 2022). P. 6. At: https://safety4sea.com/wp-content/uploads/2022/08/EY-Transportation-Institute-Jones-Act-Study-2022_08.pdf
12. The Port LSCI (PLSCI) reflects a ports' position in the global liner shipping network. A higher value is associated with better connectivity. The Port LSCI is set at 100 for the highest value in the first quarter of (Q1) of 2006.
13. Puerto Rico Planning Board (2024). Statistical Appendix Fiscal Year 2023. Table 23.
14. BR Logistics USA Inc. Ship a container to Dominican Republic. Accessed on August 7, 2024. At: <https://www.brlogistics.net/us/ship-a-container/to-dominican-republic/>
15. For a full analysis see Juan A. Castañer Martínez (2024). Nuevas direcciones en los flujos de importaciones de mercancías de Puerto Rico post-2818. *ETI Trends*, No. 17 (August 2024). At: <https://estudiostecnicos.com/ETI-trends/>

16. Fritz Pinnock and Ibrahim Ajagunna (2014). Maritime Highway Corridors in the Caribbean. *faq-logistique*. P. 7. At: <https://www.faq-logistique.com/EMS-Livre-Corridors-Transport-19-Maritime-Highway-Caribbean-Seas-Panama-Canal.htm>
17. Reeves & Associates (2011), p. 17.
18. USDC (1979), pp. 214-215.
19. American Maritime Partnership (2012), p. 15.
20. GAO, (1998), p. 4.
21. Jeffrey Valentin-Mari, José I. Alameda (2012), p. 74. See Estudios Técnicos, Inc. 2013 study for an evaluation of these findings.
22. U. S. Maritime Administration (2011), p. 4.
23. GAO (2013), and p. 1.
24. GAO (2013), p. 21.
25. S. Beason, D. Conner, N. Milonas, and M. Ruge (2015), Myth and Conjecture? The "Cost" of the Jones Act, *Journal of Maritime Law & Commerce*, 46:1 (January). At: http://www.klgates.com/files/Publication/98eba0b5-41ec-4d0d-8f8d-a111146a7fe5/Presentation/PublicationAttachment/eb4353ac-8df8-401f-977f-af4f1a5ee48c/JMLC_Jan%202015.pdf.
26. Refers to the studies done between 1991 and 2003. Afterwards, in 2004 the US ITC decided not to estimate the impact of the Jones Act given what they considered to be the high uncertainties as to the methodology and estimates.
27. Rik Walters (2024). Shipping Containers Dimensions & Everything You Need To Know. *GoFreight* (January 5, 2024). At: <https://www.gofreight.com/blog/education/shipping-container-dimensions-everything-you-need-to-know.html> ; Gap Containers (2024), Shipping container sizes. Accessed on July 31, 2024, at: <https://www.gapcontainers.co.uk/shipping-containers/container-dimensions/>
28. Estudios Técnicos, Inc. (2018). Competitiveness of the Puerto Rico Jones Act Trade. Preliminary Report submitted to Reve & Associates (February 23, 2018). Pp. 20-21.
29. Estudios Técnicos, Inc. (2018). P. 21.
30. Hillberry and Jimenez (2024). P. 4.
31. Hillberry and Jimenez (2024). P. 1.
32. Johnson Corey, Qian Wang, J. Zhneg, et.al. (2022). Container transshipment via a regional hub port: A case of the Caribbean Sea región. *Ocean & Coastal Management*, Vol. 217: 15 (February 2022). At: <https://www.sciencedirect.com/science/article/abs/pii/S0964569121004828>
33. Ricardo Sánchez and Gordon Wilmsmeier (2009). Maritime sector and ports in the Caribbean: the case of CARICOM countries. CEPAL. Natural Resources and Infrastructure Division. Santiago, Chile (June 2009). P. 24. At: https://unctad.org/system/files/non-official-document/cimem7_2014_C2_Maritime_CARICOM_en.pdf
34. Hillberry and Jimenez (2024). P. 5.
35. Office of the United States Trade Representative. Industrial Tariffs. At: <https://ustr.gov/issue-areas/industry-manufacturing/industrial-tariffs>. In this case, industrial goods include minerals and metals, and petroleum.
36. Ibid.
37. Ernst & Young (2022). Shipping performance and economic contributions of Jones Act routes in the Caribbean. Prepared for the Transportation Institute (July 12, 2022).
38. Ernst & Young (2022). P. 2.
39. Ernst & Young (2022). P. 3.
40. Ernst & Young (2022). P. 5.
41. Federal Maritime Commission (2001). The Impact of the Ocean Shipping Reform Act of 1998 (September 2001). At: https://www.fmc.gov/wp-content/uploads/2019/04/OSRA_Study.pdf One important limitation of this law is that ocean freight rates are no longer publicly disclosed. The legislation was amended in 2022.
42. J. Chwałpawicz (2018). P.1.
43. Alphaliner Top 100/July 31, 2024. At: <https://alphaliner.axsmarine.com/PublicTop100/>

Appendix: Studies on the U.S. Jones Act Economic Costs

Author	Year	Description	Is there an Economic Cost?	Conclusions
Puerto Rico Management & Economic Consultants, Inc.	1994		Yes	Ocean freight costs related to the JA for the consumers were estimated at \$32.9 million in 1993, and \$27.4 million in 1989. Its repeal would reduce capital operating costs by 8.0%, and labor costs by 4.2%.
Boyd	n.d.	Analysis of the Jones Act opponents' estimate of the law's cost on the Hawaiian economy.	Yes; \$37.50 to \$1,124 cost per household to Hawaii.	While the U.S. input-output tables were misused by opponents of the Act, a sizeable Jones Act premium still exists for the Hawaiian economy.
Magee	2002	Thesis on the effects of cabotage upon the cruise ship industry.	Yes.	Cabotage restricts entry of competitive foreign cruise ships, and forces firms to abide by the higher building and management costs of U.S. ships (p. 11).
Brooks	2009	Study by the OECD on the shipping regimes of various emerging and advanced economies.	Yes.	Cabotage restricts market scope, creates higher costs and lesser competition, burdens shipyards and liner shipping firms (p. 23).
U.S. International Trade Commission (ITC)	2002	Analysis of the evolution and impact of the Jones Act (Ch. 5).	Yes	In a previous study (1999) it estimated that the economic cost of the Jones Act was as much as \$1.3 billion for 1996. In their 2002 study they estimated that the welfare change in 1999 was \$656.0 million.
	2007	Study on the effects of trade liberalization in U.S. industries.	Unable to estimate. Ceased providing estimates after its 2002 report.	Concede that no accurate estimate of the welfare gains of the Jones Act was possible, because of the application of law issue to foreign vessels (p. 99).
	2009			"Removing the barriers to trade... is expected to increase domestic welfare, exports, and imports" (p. 9).
U.S. Transportation Institute	2009	Industry profile and achievements summary.	No.	The cost of higher freight rates can be completely explained by American work conditions, and is compensated by employment and output benefits (sec. 7).
Winston	2010	Policy impact analysis of the privatization and deregulation of the U.S. transportation system	Yes.	The limited market scope, uncompetitive port infrastructure and high ocean rates are examples of the poor policy embodied in the Jones Act (pp. 34-35).
(OECD) Bertho	2011	Analysis of the strategic and economic factors influencing the U.S. maritime shipping industry.	Yes.	High costs have spurred transport mode substitution, resulting in a declining vessel fleet and difficulties in maintaining a merchant marine (p. 313).
MARAD	2011	Operating costs analysis between U.S. and Foreign Flag vessels on foreign trade.	Yes, 2.7 times higher than Foreign-Flagged ships.	"The costs of operating place them at a competitive disadvantage for the carriage of commercial cargo in international trade" (p. 11). Cargo preference is a critical revenue stream for the commercial viability of U.S.-flag vessels (p. 18). The MSP (Maritime Security Program) has provided a key financial support in reducing the cost differential between U.S. and foreign-flag vessels, but it is considered insufficient to offset additional costs (p. 38).
J. Valentin-Mari and J. Alameda	2012	Through an econometric model they attempt to estimate the opportunity cost of maritime transportation service to P.R. under the Jones Act.	Yes	Impact on P.R. economy is estimated at \$537.2 millions in 2010, lower than their estimate of \$1.1 billion for 1999 (pp. 74-75).
GAO	2013	They interviewed relevant stakeholders in both public and private sector, and analyze data from relevant markets, as well as industry leaders in both shipyards and U.S. companies related to Jones Act trade in the Caribbean.	GAO did not attempt to estimate the economic impact, as relevant data were not available to them.	It is not possible to measure the extent of the cost differential because it involves many assumptions regarding the compliance costs of foreign carriers to U.S. regulations, and so many factors influence the rates that an independent "Jones Act-based" economic cost cannot be isolated. (p. 29). Moreover, it pointed out that "The effects of modifying the application of the Jones Act for Puerto Rico are highly uncertain."

Author	Year	Description	Is there an Economic Cost?	Conclusions
Estudios Técnicos, Inc.	2013	Present an analysis and assessment of the maritime industry over the last decade, its competitive position, the transportation system serving the Puerto Rico/U.S. route (as defined under the Jones Act), the economic and demographic factors that might influence cargo movements, and secondly, an evaluation of recent economic studies on the industry worldwide, and on the economic impact of the Jones Act.	No	Eliminating the Jones Act would not place Puerto Rico in a competitive market but instead one characterized by significant concentration. An additional aspect to take into consideration is that, in the studies in the case of Puerto Rico actual shipping costs of foreign carriers are used and not the costs they would incur if they serve the domestic routes. Reversing the benefits in an open, international liner scenario can represent significant incremental costs to shippers and/or consignees. An upper level estimate could be between a 13.0% to 43.0% incremental rate per cubic foot utilization, or more than \$80.0 million per year. Total economies derived from the use of bigger containers were estimated at \$120.8 million, or \$424.0/FEU. Total inland (freight) costs were estimated at \$313.7 million, with total transportation costs estimated at \$1,017.5 million. Inland (freight) costs represent 31.0% of the total, with U.S. costs accounting for 22.4%, and SJU inland costs 8.5% respectively.
Reeve & Associates and Estudios Técnicos, Inc.	2018	Develops a fact-based analysis of recent developments in the CONUS/Puerto Rico liner shipping market in order to determine how and to what extent shipping services provided in that market impact the people and economy of Puerto Rico, and, in particular, the cost of living within Puerto Rico.	No	Shipping costs between the mainland and Puerto Rico make up only a small percentage of the retail prices of goods on the island. Carrier market shares in the CONUS/Puerto Rico trade reflect a strong level of competition over time – since 2000, the carriers' ocean freight rates in real terms have not increased (i.e. have only increased in line with overall U.S. inflation) There is no evidence to suggest that exempting Puerto Rico from the Jones Act would reduce consumer prices in Puerto Rico. On the contrary, a Jones Act exemption would likely have an adverse effect on the quality and reliability of shipping services to and from the island as foreign-flag vessels would likely call at other Caribbean ports, thus reducing the service frequency and transit times currently enjoyed by shippers in the CONUS/Puerto Rico trade
John Dunham & Associates	2019	Uses a model of international shipping costs for 260 different commodities (both containerized and non-containerized) and compares this with 6 different estimates of domestic (US flag) shipping cost differentials.	Yes	These cost differentials range from a high of 89.0% to a low of just under 30.0%. The price of shipping cargo to Puerto Rico is \$568.9 million higher, and prices are \$1.1 billion higher than they would be without the Jones Act limitations, equal to nearly \$375 per resident.
Advantage Business Consulting, Inc.	2019	Compares freight rates of ports with different distances to Puerto Rico, (i.e. Jacksonville vs Shanghai, China).	Yes	Normalized the freight rates by 1,000 nautical miles. Advantage also adjusted the freight rates by container size, expressing all rates in \$US Dollars per Forty Equivalent Unit (FEUs). The JACs charge the highest standardize rates from Jacksonville even after adjusting for container size. They estimated a \$367.0 million/year on the costs of maritime transportation for food and beverages, and \$300.0 per household.
Hillberry and Jimenez	2024	Empirical estimation using trade data shows that PR's imports of sea-shipped final products are biased against U.S. mainland sources.	Yes	Estimated tariff-equivalent costs among final products imply static annual welfare losses of 1.1 percent of household consumption (\$203 per person). The same tariff-equivalent cost estimates imply that the law raises the cost of investment in PR by 3.0%. They conduct a compensating variation calculation that removes JA tariff-equivalent costs in final demand. The calculation suggests an annual welfare burden of the policy of \$1.4 billion.

Sources: Studies and reports cited.

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