

ANALYSIS OF ISSUES RELATED TO MARITIME TRANSPORTATION TO PUERTO RICO



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With the co-sponsorship of:



Puerto Rico
Chamber of Commerce



United Retailers
Association



Puerto Rico
Products Association



Puerto Rico
Bar Association



Puerto Rico
Restaurant Association

Table of Contents

I.	Summary and Recommendations	1
II.	Introduction	8
III.	Puerto Rico and the Jones Act.....	9
	A. Economic Impact of the Jones Act on Puerto Rico	
	B. Are the Jones Act’s Goals Being Met?	
IV.	Shanghai Containerized Freight Index (SCFI)	36
V.	Transportation Costs Compared.....	44
	A. Survey Participants’ Profile	
	B. Transportation Costs Compared	
	C. US Ports’ Freight Rates vs Comparable Ports by Distance	
	D. Land Transportation Issue - An Exercise for California	
VI.	Interviews with Key Stakeholders.....	64
VII.	Findings	66

I. Summary and Recommendations

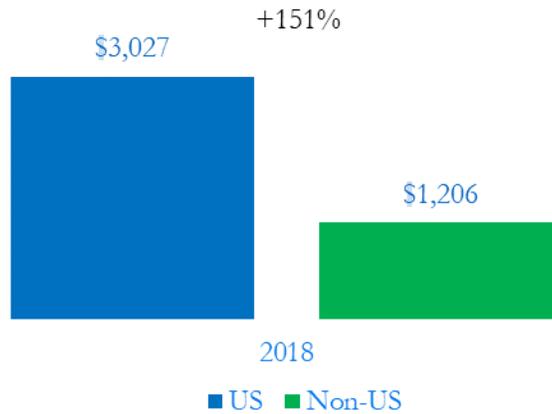
Puerto Rico is a small and open economy that depends heavily on its external trade. Its principal trade partner is the continental United States (CONUS). This is especially relevant in food imports. Given its insular condition, most of the trade in Puerto Rico uses maritime transportation services. For that reason, regulations on maritime transportation are a key factor in the economic development of Puerto Rico in general and the cost of food in particular.

In November 2018, due to the lack of official statistics, Advantage Business Consulting carried out a Survey of Maritime Transportation Practices among food industry companies in Puerto Rico. The survey had a 70% response rate. The survey included information on 32 companies with nearly 40,000 containers transported over nine months (January 2018 to September 2018). Most containers imported (90%) came from the US. Among them, 88% came from Jacksonville, FL.

The Jones Act Carriers' (JACs') higher prices were confirmed by the survey. Shipping imports from US ports costs 151% more than shipping imports from non-US ports. The figure is the blended rate from a 180% additional cost in dry goods and 129% in refrigerated goods.

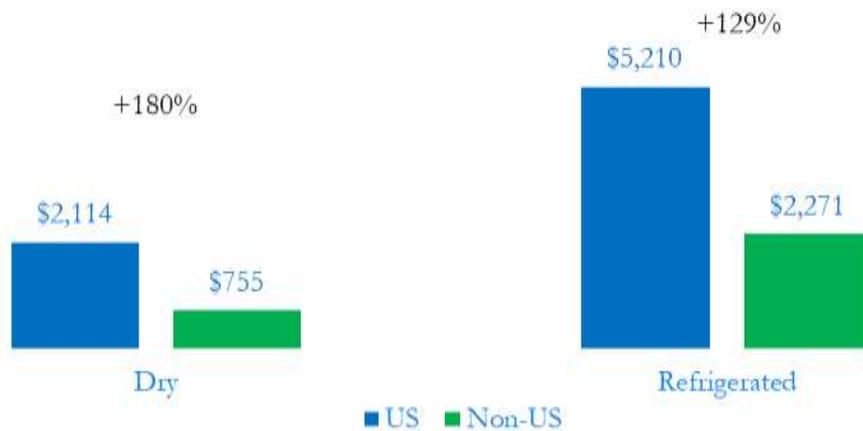
In order to compare freight rates of ports with different distances to Puerto Rico, (i.e. Jacksonville vs Shanghai, China); Advantage normalized the freight rates by 1,000 nautical miles. Advantage also adjusted the freight rates by container size, expressing all rates in \$US Dollars per Forty Equivalent Unit (FEUs). The JACs charge the highest standardize rates from Jacksonville even after adjusting for container size.

Freight Rate by Market - YTD-Sep (Weighted avg. rate per 1,000 nautical miles, \$ per FEU)



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

Freight Rate by Market & Type - YTD 2018-Sep (Weighted avg. rate per 1,000 nautical miles, \$ per FEU)



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

The standardized premium figures obtained from the survey were validated by benchmarking the US ports with non-US ports with similar distances. Thus, a 40-foot container from Jacksonville is considerably more expensive than a similar container coming from either Panamá or Cartagena.

Jacksonville's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per 40ft Container / Jan-Sep 2018)			
Port	Dry	Refrigerated	Nautical Miles
Jacksonville, FL	\$2,404	\$6,054	1,102
Panama	\$1,220	\$1,715	998
Cartagena, Colombia	\$703	\$2,004	781
Differences			
Jacksonville vs Panama	+97%	+253%	
Jacksonville vs Cartagena	+242%	+202%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

* Freight rates do not include distance normalization.

The premium in transportation costs that comes out of the Advantage survey is consistent with the 170% premium for all U.S. trade estimated by the U.S. Department of Transportation - Maritime Administration in the report "Comparison of U.S. and Foreign-Flag Operating Costs," September 2011.¹

Jones Act Premium in Maritime Transportation Cost (%)



Source: US Department of Transportation Maritime Administration, "Comparison of U.S. and Foreign-Flag Operating Costs," September 2011, pg. 11. and Advantage Business Consulting based on Maritime Transportation Survey Nov 2018.

Note: MARAD premium refers to operating costs. Since the CONUS / PR trade is an oligopolistic market and even though the difference in operational costs is not the same as price differences, Advantage assumes JACs transfer all their costs to their freight rates.

¹ US Department of Transportation Maritime Administration, "Comparison of U.S. and Foreign-Flag Operating Costs," September 2011, pg. 11.

The review of the relevant literature and statistics indicate that the Jones Act increases prices in Puerto Rico, contributes to a decline in competitiveness and promotes price fixing schemes. These higher prices increase the cost of living in Puerto Rico. In addition, by increasing the cost of doing business in the island, reduce employment.

The lack of publicly available information of freight rates results in a huge advantage to carriers at the time of negotiating freight contracts with importers and opens the door to possible price coordination among shippers. In contrast, the behavior of shipping rates from China to different locations around the world can be traced using the Shanghai Containerized Freight Index (SCFI).

Contrary to what happens with the panelists of the SCFI, none of the four JACs that serve Puerto Rico (Crowley, Tote Maritime, Trailer Bridge and National Shipping) disclose the prices of their shipping contracts in a government-validated platform.²

The Jones Act makes for a very unstable market, prone to unexpected shocks. Experts in the industry recalled Horizon's abrupt exit from the shipping market in 2014 as a game changer, which implied a constraint in terms of available trading routes and container capacity. El Faro's tragic sinking on October 2, 2015 was also highlighted by executives from importing companies as they stated having logistics challenges for as long as two months afterwards.

The most recent and most obvious of all was the shipping crisis in Puerto Rico in the aftermath of Hurricane Maria, with industry experts confirming that charter vessels were needed to ship regular merchandise due to FEMA's use of Crowley's ships. While the emergency environment required unusual measures, it resulted in a lack of container space for regular goods.

² Domestic carriers are required to file their general rates with the Surface Transportation Board (STB) – but not private contracts – and as the RA/ET report acknowledges; “almost all cargo shipped in the CONUS/Puerto Rico trade moves under confidential contracts.” (p.12 RA/ET 2018 study)

Following a request from the governor of Puerto Rico, and in spite of lobbying from the JACs against this request, President Trump issued a 10-day waiver to the Jones Act for Puerto Rico. According to US Customs & Border Protection data, despite the short duration of the Jones Act waiver, there were 10 international vessels that carried diverse urgently needed supplies like baby food, water, generators, diesel and other goods from US ports to Puerto Rico.

In a competitive shipping market, the three events mentioned above would have been resolved quickly through the entrance of new suppliers. In Puerto Rico, the impact of the Jones Act results in market conditions that are unfavorable for living and doing business in Puerto Rico.

The estimated **\$300 million** a year Jones Act Tax on the cost of maritime transportation for food and beverages in Puerto Rico does not include the issues of land transportation, the cascade effect and local production.

a) Land transportation extra costs occur because the Jones Act Carriers (JACs) service Puerto Rico from a very limited number of ports and use Jacksonville as their principal port. Therefore, shippers have to move their merchandise overland from as far as California to Jacksonville. At present, bringing a 40-foot container from California to Puerto Rico through Jacksonville costs some \$9,404 while a foreign flag vessel, using Chile-San Juan as benchmark, would bring the same container to Puerto Rico for \$2,483.

b) The estimate of the Jones Act Tax also does not include the “cascade effect” in the local distribution chain. Because the merchandise that arrives in Puerto Rico already includes this implicit Jones Act Tax—making it more expensive—all the markups in the distribution chain are calculated including the Jones Act Tax.

c) Puerto Rico agricultural production becomes more expensive as the Jones Act adds to the cost of inputs required by the local farmers, from fertilizers to electricity.

The Jones Act can be viewed as a tax on Puerto Rico households. Advantage’s estimates indicate that the cost of the Jones Act for Puerto Rico – only on food and beverages – is around **\$367 million** per year, when considering the additional issues discussed above. This represents a cost of **\$300 per household** per year. The average household is 2.8 persons. If the household has more than 2.8 persons, the cost of the Jones Act to the household would increase accordingly.

In July 2018, 10 months after the devastation of Hurricane Maria, the Government of Puerto Rico indicated in its Disaster Recovery Plan that the Jones Act is one of its vulnerabilities:

“The Jones Act effectively constrains the ability of Puerto Rico to import a variety of goods and services at more competitive prices (including, but not limited to, liquified natural gas [LNG], food, and other commodities). Although the exact magnitude of the effect is unknown due to data limitations, it is likely that the prices of imports in Puerto Rico, and of the goods and services produced from these imports, may be artificially inflated, which reduces the welfare of both producers and consumers.”³

Principal Recommendations

- Repeal the Jones Act because the damage to the economic markets, especially the market in Puerto Rico, are daunting. The insular condition of Puerto Rico exacerbates the negative economic impacts of the Jones Act.
- In the alternative, a Jones Act waiver of at least five years could serve to demonstrate the impediments that the Act creates in Puerto Rico.
- In order to bring transparency to the maritime transportation services in the CONUS/PR trade, it would be recommendable for the PR government to order a publicly available freight index, similar to the existing Shanghai Containerized Freight Index (SCFI).

³ Shannon Stapleton/Reuters (July 9, 2018), Transformation and Innovation in the Wake of Devastation: An Economic and Disaster Recovery Plan for Puerto Rico. Preliminary Draft. pp. 17-18.

- Continue researching the economic impact of the Jones Act in other sectors of the economy.
- Quantify the share of the losses caused by Hurricane Maria in Puerto Rico that are attributable to the fact that the waiver to the Jones Act was only for 10 days.

II. Introduction

The food and beverage industry, and the private sector in general, have long suffered from disruptions in Puerto Rico's supply chain. The problems of the supply chain previous to Hurricane Maria were mainly issues of cost and irritants of time delays. After Hurricane Maria made landfall in September 2017, the supply chain issues have been exacerbated, with significant increases in the price of moving merchandise from outside Puerto Rico to the island and with long delays.

Client requested a proposal from Advantage Business Consulting for a serious analysis of the characteristics of Puerto Rico's maritime supply chain, the present conditions and realistic recommendations that could be implemented in the current political climate, both in Puerto Rico and the United States.

Thus, the objective of the analysis is to deliver transparency and market information. This transparency and market information would provide immediate benefits to the users of shipping services and serve as a stepping stone towards future changes in the legal and regulatory framework.

The March 2013 study by the Government Accountability Office (GAO) on the Jones Act states:

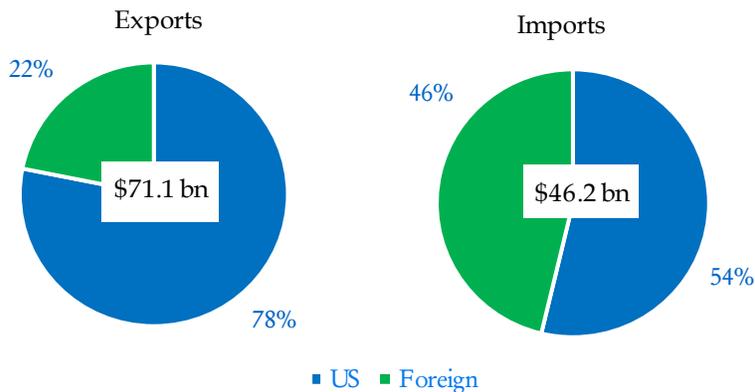
"Shippers doing business in Puerto Rico reported that freight rates for foreign carriers going to and from foreign ports are often – although not always – lower than rates they pay to ship similar cargo from the United States, despite longer distances. However, data were not available to allow us to validate the examples given or verify the extent to which this occurred." (p.5, GAO report).

This study is intended to shed light over the latter issue.

III. Puerto Rico and the Jones Act

Puerto Rico is a small and open economy that depends heavily on its external trade. Its principal trade partner is the continental United States (CONUS). In 2017, 78% of its exports and 54% of its imports were with the US.

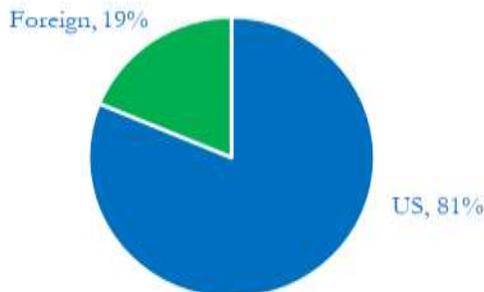
PR Exports and Imports by Country of Destination and Origin
(FY 2017, \$ billion)



Source: Puerto Rico Planning Board. External Trade 2017.

The importance of the US in Puerto Rico’s commerce increases to 81% when analyzing food imports. This fact stresses the necessity of dealing with the various components of food prices, including the cost of maritime transportation by Jones Act Carriers.

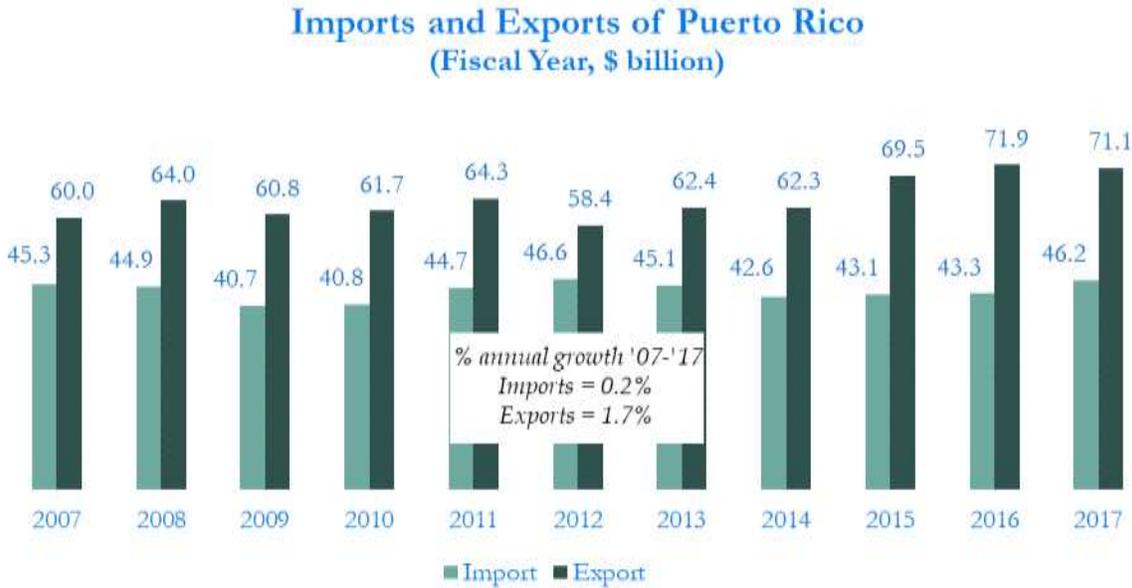
PR Food Imports by Country of Origin
(FY 2017, NAICS 311, %)



Source: Puerto Rico Planning Board.

According to the external trade statistics published by the PR Planning Board, total exports of the Island grew from \$60 billion in 2007 to \$71.1 billion in 2017, for an annual growth of 1.7%. On the other hand, total imports remained more or less unchanged in the past 10 years and went from \$45.3 billion in 2007 to \$46.2 billion in 2017, for a 0.2% annual growth.

Given the insular condition of Puerto Rico, the regulations of maritime transportation (i.e. the Jones Act) have a great impact on the economic activity, competitiveness and consumer prices in Puerto Rico.



Source: Puerto Rico Planning Board. Statistical Appendix of the Economic Report to the Governor 2017. Tables 23 and 24.

The Merchant Marine Act of 1920 is a United States federal statute that provides for the promotion and maintenance of American merchant marines. Among other purposes, the law regulates maritime commerce in US waters and between US ports. Section 27 of the Merchant Marine Act is known as **the Jones Act** and deals with cabotage (originally applied to shipping trade by sea) and requires that all goods transported by water between US ports be carried on:

1. US-flagged ships that are
2. constructed in the United States,

3. owned by US citizens,
4. and crewed by US citizens and US permanent residents.

The Jones Act of 1920 applies to Puerto Rico completely and without exemptions, as in the states of Alaska and Hawaii. This situation is different from other noncontiguous jurisdictions of the United States where the application of the Jones Act is less restrictive; such as in Guam, where the requirement to use ships built on US soil does not apply. On the other hand, the Jones Act does not apply in any way to the US Virgin Islands, the Northern Mariana Islands or American Samoa.⁴

US Jurisdictions and their Status Under Jones Act			
<u>Jurisdiction</u>	<u>Total Exemption</u>	<u>Partial Exemption</u>	<u>No Exemption</u>
States			
Alaska			✓
Hawaii			✓
Unincorporated Territories			
Guam		✓	
US Virgin Islands	✓		
Northern Mariana Islands	✓		
Puerto Rico			✓
American Samoa	✓		

A. Economic Impact of the Jones Act on Puerto Rico

1. Prices

The review of the relevant literature and statistics indicate that the Jones Act increases prices in Puerto Rico, contributes to a decline in competitiveness and promotes price fixing schemes. These higher prices increase the cost of living in Puerto Rico.

There is debate regarding the total cost of the Jones Act to Puerto Rico's economy, but it has been documented that the Act increases the prices of trade between US ports, which

⁴ Senate of Puerto Rico. Commission on Civil Rights, Participation and Social Economy (2015) Final Report of Senate Resolution 237, April 9, 2015.

accounts for the majority of trade to and from Puerto Rico. According to the June 2012 Federal Reserve Bank of New York’s Report on the Competitiveness of Puerto Rico’s Economy:

“It costs an estimated \$3,063 to ship a twenty-foot container of household and commercial goods from the East Coast of the United States to Puerto Rico, the same shipment costs \$1,504 to nearby Santo Domingo (Dominican Republic) and \$1,687 to Kingston (Jamaica) – destinations that are not subject to Jones Act restrictions.”

It is important to note that the previous statement solely considers shipping prices (ocean freight). There is another intrinsic factor to the Jones Act in that it increases “inland” costs freight because the Jones Act Carriers (JACs) service Puerto Rico from a very limited number of ports and use Jacksonville as their principal port. For example, the food and beverage industry went from having 9 ports of origin in 1996 to 4 in 2018. Therefore, shippers have to move their merchandise by overland from as far as California to Jacksonville.

Ports Concentration in the Jones Act Trade	
<u>Ports of Origin (1996)</u>	<u>Ports of Origin (2018)</u>
Jacksonville	Jacksonville
Pennsauken	Pennsauken
Houston	Houston
Elizabeth	Philadelphia
New Orleans	
Miami	
South Carolina	
New York	
Baltimore	
Philadelphia	

Sources: Competition in the Noncontiguous Domestic Maritime Trades, U.S. Department of Transportation, March 1997, p. III-2; Reeve & Associates and Estudios Técnicos, Inc., Impact of the U.S. Jones Act on Puerto Rico, July 2018, p.18

Additional to the reduction of ports of origin, the decrease in capacity of the fleet and the reduction in weekly frequency of arrivals over the past two decades are all contributors to limit the supply, and therefore to a rise in ocean freight rates.

Supply Side Reductions in the CONUS/Puerto Rico Trade						
<u>Carrier</u>	<u>Number of Vessels (1996)</u>	<u>Number of Vessels (2018)</u>	<u>Weekly Capacity (1996)</u>	<u>Weekly Capacity (2018)</u>	<u>Weekly Frequency (1996)</u>	<u>Weekly Frequency (2018)</u>
Crowley	13	8	2,416	3,052	6	6
Tote	0	2	0	3,100	0	2
Trailer Bridge	2	4	232	920	1	2
National Shipping	0	1	0	143	0	1
Navieras de PR	5	0	2,400	0	4	0
Sea Barge Group	4	0	576	0	2	0
Sea Land	5	0	2,485	0	4	0
Cuban Caribbean	1	0	57	0	0.5	0
Total	30	15	8,166	7,215	17.5	10.8

Sources: *Competition in the Noncontiguous Domestic Maritime Trades*, U.S. Department of Transportation, March 1997, p. III-2;
Reere & Associates and Estudios Técnicos, Inc., Impact of the U.S. Jones Act on Puerto Rico, July 2018, p.18

According to the website of Crowley Maritime Corp., the biggest player in Puerto Rico’s maritime trade, the rate of shipping a vehicle from Jacksonville to San Juan was \$1,200 (as of Nov. 2018), compared with \$810 and \$835 to ports in Costa Rica and Panama, respectively. This shows the higher prices that the JACs charge to its Puerto Rican clients.

Crowley's Vehicle Shipping Rates from Jacksonville		
<u>Port of destination</u>	<u>\$ Rate</u>	<u>% Difference San Juan, PR vs other ports</u>
San Juan, PR	\$1,200	-
Puerto Limón, CR	\$810	-33%
Puerto Manzanillo, PA	\$835	-30%

Source: www.crowley.com Accessed in November 2018

The Jones Act is nearly 100 years old and is clearly a protectionist law meant to keep international carriers outside of domestic water trades. Until 1995 other federal statutes somewhat prevented market concentration abuse. Unfortunately, transportation deregulation during the 1980s and 1990s meant to increase competition was incomplete and contradictory, causing the opposite effect on the Jones Act trades, inhibiting market competition and forcing even more concentrated and unsupervised oligopolies that are prone to market power abuse.⁵

The existing conditions in Puerto Rican trade have been conducive to price fixing schemes. Between 2008 and 2013, three Jones Act suppliers, pleaded guilty in federal court to fixing prices in their Puerto Rican trade, and six executives from two of the companies went to prison.⁶

In 2012, maritime transport companies Sea Star Line and Horizon increased their rates in their trips between Puerto Rico and the United States. The companies cited the increase in operating costs as a reason for the increases. At that time, Crowley reported that "we will study the rate increases announced by our competitors and we will make a compliance decision."

⁵ Reyes, Manuel. (2018). A Shift Toward Murkiness: How Conflicting Transportation Policies Have Forced Unsupervised Oligopolies on Jones Act Trades in the Past 23 Years. CATO Institute.

⁶ Hansen, Michael. (2013). Sixth Jones Act shipping executive goes to jail in Puerto Rico rate-fixing case. Grassroot Institute of Hawaii.

“The problem is that prices will rise throughout the supply chain: drivers, retail, manufacturing, government, and therefore, in all sectors,” said economist José Alameda.⁷

In August 2015, a GAO report titled “International Food Assistance: Cargo Preference Increases Food Aid Shipping Costs, and Benefits are Unclear” indicated that the cargo preference requirements for food aid (i.e. 50% of food aid to be carried on US-flagged vessels) increased the overall cost of shipping food aid by an average of 23%, or \$107 million per year.⁸ This is an indicator of how the Jones Act increases the costs of maritime transportation.

In July 2018, Reeve & Associates and Estudios Técnicos Inc. (RA/ET) published a study entitled “Impact of The US Jones Act on Puerto Rico.” On page 6 of that study, the authors indicated “...a sample of the prices of an assortment of consumer goods (at Walmart) in San Juan and Jacksonville, Florida, that was done in March 2018 shows no significant difference in the prices of either grocery items or durable goods between the two locations.”

In order to verify the validity of this statement, Advantage made the same exercise but using a different sample of goods at the same retailer.⁹ As opposed to the results in the study by RA/ET, prices in San Juan were much higher. As shown below, depending on the product, prices in San Juan were 11% to 65% more expensive than the same goods in Jacksonville.

⁷ El Nuevo Día (2012) Alza en los Fletes.

<https://www.elnuevodia.com/negocios/finanzas/nota/alzaenlosfletes-1208168/>

⁸ GAO (2015). International Food Assistance: Cargo Preference Increases Food Aid Shipping Costs, and Benefits are Unclear. p. 14.

⁹ It is important to highlight that, for this exercise, Advantage only replicated the methodology from the RA/ET study to make the argument that the sample selected in their study was biased. The retailer did not collaborate in this exercise.

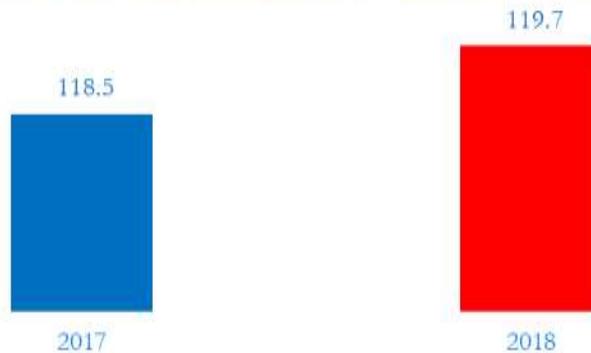
Prices of Selected Consumer Goods at Walmart Stores in San Juan and Jacksonville in November 2018				
Grocery Items	San Juan Puerto Rico	Jacksonville Florida	Difference	% increase in San Juan
Ketchup Heinz Tomato Ketchup, 2 - 50.5 oz Multipack	\$6.98	\$6.28	\$0.70	11%
Beef 93% Lean/7% Fat, Lean Ground Beef, 1 lb	\$4.98	\$4.48	\$0.50	11%
Eggs Great Value Jumbo White Eggs, 12 Count	\$2.69	\$2.03	\$0.66	33%
Ham Hillshire Farm® Ultra Thin Sliced Lunchmeat, Black Forest Ham, 9 oz.	\$3.48	\$2.97	\$0.51	17%
Butter Land O Lakes Butter with Canola Oil, 24 oz.	\$5.86	\$4.68	\$1.18	25%
Vegetable Oil Crisco Pure Vegetable Oil, 1-Gallon	\$7.88	\$6.58	\$1.30	20%
Cheese Great Value, Finely Shredded Mozzarella Cheese, Low-Moisture Part-Skim, 16 Oz.	\$4.22	\$2.56	\$1.66	65%
Salmon Great Value Wild Caught Salmon Fillets, Skin On, 2 lb	\$9.67	\$7.92	\$1.75	22%
Peaches Del Monte Sliced Yellow Cling Peaches, 15.25 oz	\$1.76	\$1.44	\$0.32	22%
Average	\$5.28	\$4.33	\$0.95	22%

Source: Online surveys of Walmart Stores in November 2018.

The PR Institute of Statistics and the Council for Community and Economic Research published a Cost of Living Index (COLI) for Puerto Rico. According to this source, the cost of grocery items in Puerto Rico was 18.5% more expensive than the average in the US in the Third Quarter (Q3) of 2017. This situation worsened in Q3-2018, when the prices of grocery items in PR were 19.7% more expensive than in the US. The COLI data is also inconsistent with the results of Reeve & Associates and Estudios Técnicos Inc.

It is clear that the sample used by Reeve & Associates and Estudios Técnicos Inc. was not a representative sample of groceries consumed by a typical household in Puerto Rico.

**Cost of Living Index - Grocery Items in
Puerto Rico**
(Average prices indices in US = 100, 3rd Quarter)



Source: PR Institute of Statistics and Council for Community and Economic Research.

The information provided in Exhibit V-2 on page 21 of the report by RA/ET from July 2018 corroborates that the weekly vessel capacity for US/Puerto Rico trade fell from 8,030 FEUs (forty-foot equivalent unit) in 2011 to 7,215 FEUs in 2018, a 10% reduction. This probably contributed to the increase in freight rates acknowledged by RA/ET in Exhibit V-3 on page 22 of their report.

2. Economic Growth and Competitiveness

The literature reviewed indicates that the Jones Act constitutes a form of protectionism that is harmful to the economy of the US and PR. The Jones Act creates costly barriers to trade, increases the time and costs of importing to and exporting from PR, reducing its competitiveness.

The specialized literature indicates that trade is seen as the engine of the development of any nation. The trade balance of a country affects its Gross Domestic Product, including the expansion of manpower and technological development. In today's global economy, the trade of goods is mostly carried out on water and ships are the vehicle of connection. There is no other form of transport that exceeds maritime navigation in terms of quantity

and volume of goods that are traded globally. Cabotage regulations that restrict access or reserve maritime trade from a territorial jurisdiction of a country to local capacities constitute a form of protectionism.¹⁰

In April 2013, PR Senator Rossana López León presented PR Senate Resolution 237 (SR 237) focused on analyzing the GAO report on cabotage laws. Between January 2014 and January 2015, several public hearings on SR 237 took place in the Legislature. All but two (the Puerto Rico Shipping Association and economist José Villamil of Estudios Técnicos) of the 41 witnesses who testified in the public hearings asked to repeal the Jones Act or exempt Puerto Rico from its application. The main reason cited to repeal the Jones Act was its negative effects on the PR economy.¹¹ Opposing the Jones Act were the Puerto Rico Bar Association, the Association of Certified Public Accountants of Puerto Rico, the PR Department of Consumer Affairs, the PR Department of Agriculture, the Puerto Rico Chamber of Commerce, the Southern Chamber of Commerce of Puerto Rico, Centro Unido de Detallistas, the Restaurants Association of Puerto Rico (ASORE, by its Spanish acronym), and the Association of Products of Puerto Rico, among many others. After this long process of public hearings, the conclusions presented on April 9, 2015 indicated that the vast majority of the evidence that has been generated through independent studies about the Jones Act of 1920 indicate that such legislation is harmful to the economy of the United States and even worse for its territories and possessions.¹²

The application of the Jones Act to Puerto Rico has been harshly criticized throughout its history. Only a decade after its implementation, in 1931, the Brookings Institution, in its study entitled "Porto Rico and its Problems," indicated: "American coastwise shipping laws are a handicap to Porto Rican trade... It increases the cost of Porto Rican goods... the requirement that American ships shall be used tends to offset somewhat the advantage

¹⁰ Valentin, Jeffrey. (2014). Impacto Económico de las Leyes de Cabotaje sobre Puerto Rico.

¹¹ Senate of Puerto Rico, Commission on Civil Rights, Participation, and Social Economy. Final Report of Senate Resolution 237, April 9, 2015. p. 172.

¹² Senate of Puerto Rico, Commission on Civil Rights, Participation, and Social Economy (2015). Ibid. p. 72.

which the tariff gives to Porto Rico in selling in American markets... if Porto Rico were free to use foreign shipping whenever it found an advantage in so doing, it is quite probable that it would be able to build up a larger trade with foreign countries than it now has.”¹³

According to an analysis by the Cato Institute, the Jones Act provides the world’s most restrictive example of global cabotage laws.¹⁴

The 2012 Report on the Competitiveness of Puerto Rico’s Economy of the Federal Reserve Bank of New York recommended: Lower the Costs of Doing Business by seeking a temporary exemption from the Jones Act, for instance for five years, to evaluate whether or not these restrictions really are a substantial cause of elevated shipping costs and allow for an assessment of the costs and benefits of a permanent exemption.¹⁵

In 2015, Anne Krueger, a former deputy managing director of the International Monetary Fund, said: *“Exempting Puerto Rico from the US Jones Act could significantly reduce transport costs and open up new sectors for future growth. In no mainland state does the Jones Act have so profound an effect on the cost structure as in Puerto Rico. Furthermore, there are precedents for exempting islands, notably the US Virgin Islands.”*¹⁶

In July 2018, 10 months after the devastation of Hurricane Maria, the Government of Puerto Rico indicated in its Disaster Recovery Plan that the Jones Act is one of its vulnerabilities:

“The Jones Act effectively constrains the ability of Puerto Rico to import a variety of goods and services at more competitive prices (including, but not limited to, liquified natural gas [LNG], food, and other commodities). Although the exact magnitude of the effect is unknown due to data

¹³ Senate of Puerto Rico, Commission on Civil Rights, Participation, and Social Economy (2015). Op. cit. p. 165.

¹⁴ Grabow, Colin, Manak, and Ikenson (2018). The Jones Act: A Burden America Can No Longer Bear. Cato Institute. Policy Analysis, June 28, 2018 | Number 845. p. 4.

¹⁵ FRBNY (2012). Report on Competitiveness of Puerto Rico’s Economy. p. iv.

¹⁶ Krueger, Anne O., Ranjit Teja, and Andrew Wolfe. (June 29, 2015). Puerto Rico-A Way Forward, p. 18.

limitations, it is likely that the prices of imports in Puerto Rico, and of the goods and services produced from these imports, may be artificially inflated, which reduces the welfare of both producers and consumers.”¹⁷

3. Maritime Transportation services

The Jones Act impacts the freshness of groceries consumed in Puerto Rico. Vessels that come from markets outside the US cannot download part of their merchandise (fresher food) in Puerto Rico and then continue their journey toward the CONUS to download more merchandise since they would not have access to the US coastal states market because they left a port "protected" by the Jones Act of 1920.

For that reason, unless Puerto Rico is the final destination of a vessel, the products consumed in Puerto Rico require an additional 4 to 7 days of transportation. They need to be off-loaded in the CONUS, reloaded in a Jones Act vessel and then shipped to Puerto Rico.¹⁸

¹⁷ Shannon Stapleton/Reuters (July 9, 2018), Transformation and Innovation in the Wake of Devastation: An Economic and Disaster Recovery Plan for Puerto Rico. Preliminary Draft. pp. 17-18.

¹⁸ Senate of Puerto Rico. Commission on Civil Rights, Participation, and Social Economy (2015) Final Report of the Senate Resolution 237. p. 155.

Maritime Routes Toward Puerto Rico				
<u>Origin</u>	<u>Maritime Route</u>	<u>Days</u>	<u>Nautic Miles</u>	<u>Products</u>
United States	Average Florida, Texas, and New Jersey	4-7	1,310	All types
Brazil	Rio de Janeiro – Colon (Panama) – SJU	17	5,329	Fruits
Canada	Vancouver – Panama Canal – SJU / Montreal – Elizabeth (New York) – SJU	16	5,190	Potatoes, Poultry
		19	2,806	
China	Shanghai – Canal de Panama – SJU	29	9,482	Fish, seafood, cereal
Costa Rica	Limón – Colón (Panama) – SJU / Limón – SJU	6	1,298	Farinaceous (yuca, yautia, batata, ñame)
		4	1,118	
Ecuador	Guayaquil – Cartagena (Colombia) – Colon (Panama) – SJU	4	1,118	Platains
Greece	Pireaus – Livorno (Italy) – Valencia (Spain) – SJU	9	1,970	Oil
Dominican Republic	Caucedo – SJU	2	502	Vegetables, grains

Source: Myrna Comas. (2009). Vulnerabilidad de las cadenas de suministros, el cambio climatico y el desarrollo de estrategias de adaptación: El caso de las cadenas de suministros de alimento de Puerto Rico. p. 76.

Nowadays, the worldwide container shipping industry is marked by deregulation and (intensified) competition.¹⁹ Contrary to the global trends, the CONUS/PR trade is isolated and highly concentrated. In 2017, the global container shipping industry had a Herfindal-Hirschman Index²⁰ (HHI) of 776, which signals a competitive market, compared with an HHI of 3,498 for the Southbound trade of Puerto Rico and an HHI of 3,802 estimated using the FEUs capacity of the four Jones Act Carriers (JACs). Both measures signal a highly concentrated level.

¹⁹ Sys, Christa (2016). Measuring the Degree of Concentration in the Container Liner Shipping Industry

²⁰ The Herfindal-Hirschman Index measures market concentration and is used to determine market competitiveness.

Estimate of Concentration Index in the CONUS/Puerto Rico Trade			
<u>Carrier</u>	<u>Capacity (FEUs one way)</u>	<u>Market share by Capacity 2018</u>	<u>Market Share by Southbound trade as of Sept-2017</u>
Crowley	3,052	42%	40%
Tote	3,100	43%	40%
Trailer Bridge	920	13%	17%
National Shipping	143	2%	3%
Total	7,215	100%	100%
HHI		3,802	3,498
Interpretation	>2,500 is a highly concentrated market		

Source: Reeve & Associates and Estudios Tecnicos, Inc. (July 2018). Impact of the US Jones Act on Puerto Rico. pp. 18 & 20.

The US Department of Justice considers a market with an HHI of less than 1,500 to be a competitive marketplace; an HHI of 1,500 to 2,500 to be a moderately concentrated marketplace; and an HHI of 2,500 or greater to be a highly concentrated marketplace.

CONUS/PR and Global Concentration Index in the Container Shipping Industry

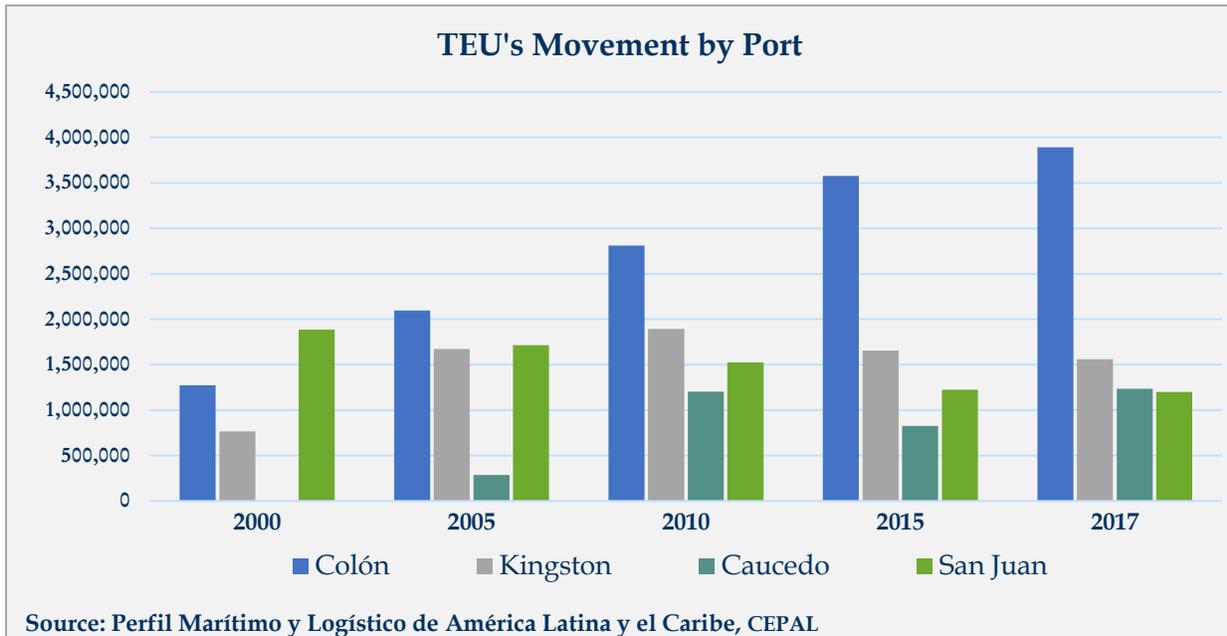


Source: Reeve & Associates and Estudios Tecnicos, Inc. (July 2018). Impact of the US Jones Act on Puerto Rico. pp. 18 & 20, and UNCTAD. Review of Maritime Transport 2017. pp. 30-31.

Until 2003, the Port of San Juan was the busiest among all countries grouped under the Economic Commission for Latin America (CEPAL by its Spanish acronym). Since then, the Port of San Juan has lost importance and now ranks 13th among ports of the ECLA

countries in TEUs handled. The main explanation is that the Island has lost more than 20% of its economic activity since the prolonged recession that started in 2006.

By 2017, the ports of Colón (Panama), Kingston (Panama) and Caucedo (Dominican Republic) were all moving more containers than Puerto Rico.



The tragic sinking of the cargo ship El Faro (October 2, 2015), of the former Sea Star Line (renamed Tote Maritime), brought to the table the Island's vulnerability in its supply system. Tom Vincent, president of the Committee on Transportation of the Puerto Rico Manufacturers Association, said that El Faro was one of the two propulsion ships that served the Island. It takes three days for these ships to arrive at their destination, as opposed to barges, which take seven days.²¹

²¹ El Nuevo Día, October 6, 2015. Supply Chain Tenses After the Capsizing of “El Faro.”

El Faro's tragic sinking highlighted again the uncertainty that the restrictions of the Jones Act have on the people and economy of Puerto Rico, as the Island depends mainly on US merchant marines in the transportation of supplies.²²

4. *Cost of the Jones Act*

Economic studies have consistently found an aggregate economic cost of the Jones Act. These studies calculated the cost of the Jones Act in terms on its effect on higher transportation costs and its overall effect on the US and Puerto Rico economies.

Studies conducted by the GAO in the 1980s and 1990s, estimated that for the residents of Hawaii, Alaska and Puerto Rico, the application of the Jones Act costs them between **\$2.8 billion** and **\$9.8 billion** dollars a year.²³

In 1995, a study of the US International Trade Commission found that the Jones Act, at that time, cost the US economy (i.e. consumers) about **\$2.8 billion** annually. In addition, it found that if the Act was repealed, transport prices could go down by up to 26%.²⁴

In 1999, the US International Trade Commission (USITC) performed another study about the economic impact of the principal US import restraints, including the cabotage laws. Most of the quantitative results described in the report were derived using the USITC Computable General Equilibrium model of the United States, applied to data on the US economy, as of 1996. A repeal of the maritime cabotage restrictions yielded a benefit of **\$1.3 billion** at 1996 prices.²⁵

It is important to note that as the US International Trade Commission indicated, the economic benefits of the liberalization of the maritime cabotage restrictions (i.e. the

²² El Nuevo Dia, October 2, 2015. Desaparición de buque pone en evidencia vulnerabilidad alimentaria de la Isla.

²³ Senate of Puerto Rico. (2015). Op. cit. p. 74

²⁴ Senate of Puerto Rico. (2015). Op. cit.

²⁵ United States International Trade Commission (May 1999). Effects of Significant US Import Restraints, Second Update 1999. p. iii

Jones Act) not only include savings in freight rates in the maritime transportation industry but also additional trade flows, production and employment in other industry sectors.

The Jones Act not only reduces the availability of maritime shipping routes from the CONUS to Puerto Rico, but also within the CONUS. For example, a foreign vessel cannot bring goods from Asia to both the port of Los Angeles and the port of Oakland on the same voyage. This creates challenges for shipping companies with foreign-flagged vessels to ensure their ships carry balanced cargos that keep the ship fully loaded along all parts of its voyage. The Jones Act clearly creates inefficiencies. Shipping by water is significantly less expensive than shipping by rail, truck or air.²⁶

According to other studies:

In 2001, Herrero, Soriano & Valentín argued that the Jones Act is a limitation to free trade, since it excludes non-Jones Act carriers from most of the maritime transportation market of Puerto Rico. The law increases transportation costs, representing a burden for trade between Puerto Rico and the US.²⁷

In 2005, Quiñones L.R. mentioned that the coastal trading laws increase costs by up to **\$700 million** per year.²⁸

The results of a study commissioned by the PR Planning Board to economists José Alameda and Jeffry Valentin published in the 2012 Economic Report to the Governor suggested that the institutional arrangement that regulates the transportation maritime trade of Puerto Rico represents a relatively high cost to the economy – not only limiting export capacity but also increasing internal costs and the prices of imported products.

²⁶ Smith, Vincent H. and Philip Hoxie. (2018). Trump's 'Free and Open Indo-Pacific Strategy' should include Jones Act repeal. AEIdeas.

²⁷ Cruz et al (2014) The Maritime Laws Of The United States Of America And Their Impact In Puerto Rico's Current Economy. Inter Metro Business Journal Spring 2014 / Vol. 10 No. 1. p. 20.

²⁸ Ibid.

They estimated the average annual cost of the Jones Act for Puerto Rico was **\$679 million**.²⁹

The benefits of the Jones Act are concentrated among special interest groups, but the costs are broadly dispersed. Total costs are very large, but costs per consumer are not that large. Consumers (i.e. voters) have weak incentives to mobilize against the Act, even though it is wasteful for the general population.³⁰

A U.S. Department of Transportation - Maritime Administration report found that the operating costs of US-flagged vessels engaged in foreign commerce in 2010 were **2.7 times** greater than those of their foreign counterparts. According to the JACs themselves, including Crowley and Tote, the costs of operating under the U.S. flag place them at a competitive disadvantage for the transport of commercial cargo in international trade.³¹ Furthermore, in a span of five years, approximately half of the carriers indicated that they had transferred a U.S.-flagged vessel to a foreign registry and/or are planning to transfer a U.S.-flag vessel.³²

Jones Act Premium in Maritime Transportation Cost (%)



Source: US Department of Transportation Maritime Administration, "Comparison of U.S. and Foreign-Flag Operating Costs," September 2011, pg. 11. and Advantage Business Consulting based on Maritime Transportation Survey Nov 2018.

Note: MARAD premium refers to operating costs. Since the CONUS/PR trade is an oligopolistic market and even though the difference in operational costs is not the same as price differences, Advantage assumes JACs transfer all their costs to their freight rates.

²⁹ Puerto Rico Planning Board (2012) Economic Report to the Governor 2012. Economic Impact of the Jones Act on the Economy of Puerto Rico: Discussion, Analysis and Measure. p. 110.

³⁰ Grennes Thomas (2017). The Jones Act Revisited. Mercatus Center, George Mason University. p.1.

³¹ US Department of Transportation Maritime Administration. (2011). "Comparison of U.S. and Foreign-Flag Operating Costs," p 11.

³² Price Waterhouse Cooper. (2011). Study of the Impediments to U.S. -Flag Registry. p. 9.

In addition, the Jones Act imposes a variety of significant costs on the US economy. There are six broad cost categories that any proper and comprehensive analysis of the Jones Act should take into account. Those categories are: transportation costs, environmental costs, lost wages and output, lost domestic revenue, lost foreign revenue, and infrastructure costs.³³

5. *Consensus About Negative Impacts of Jones Act*

Economists across the ideological spectrum oppose cabotage laws and the Jones Act, ranging from liberal Paul Krugman, to free-market libertarians at the Cato institute, to centrists at The Economist magazine. The common argument is that restricting competition raises costs and prices, and that the benefits of cabotage laws accrue to workers and owners of protected industries in America. The losses, opponents argue, are borne by the general public in the form of higher prices brought about by restricted competition. Given the standard benefits of trade and comparative advantage, the logic is that losses are greater than gains.³⁴

B. Are the Jones Act's Goals Being Met?

For nearly 100 years, the Jones Act has restricted the water transportation of cargo between US ports to ships that are US-owned, US-crewed, US-registered and US-built. Originally it was justified on national security grounds as a means to bolster the US maritime industry.³⁵ What was found in this literature review is that this Law has failed to guarantee the security of the United States and Puerto Rico; is an obstacle to a speedy response to domestic disasters such as hurricanes; does not create new jobs and retains fewer employees than what it is supposed to do. In addition, it has failed to maintain the

³³ Grabow, Colin, Manak, and Ikenson (2018). Op. cit. p.10

³⁴ <https://www.brookings.edu/blog/up-front/2017/10/25/what-everyone-got-wrong-about-the-jones-act-hurricane-relief-and-puerto-rico/>

³⁵ Grabow, Colin et al. (2018). The Jones Act: A Burden America Can No Longer Bear. Cato Institute. Policy Analysis.

US as a major player in the shipbuilding industry and also failed to develop a strong US maritime merchant fleet.

1. *Security*

In July 2017, about one year before his death, US Sen. John McCain (R-AZ), chair of the Senate Armed Services Committee, said: “I have long advocated the repeal of the Jones Act, an archaic and burdensome law that hinders free trade, stifles the economy and ultimately harms consumers.”³⁶ There are few people better than Senator McCain to adequately understand the importance of the Jones Act for the military and he was always against that law.

The Jones Act is costly to consumers, and it is an obstacle to a speedy response to disasters such as hurricanes Harvey, Irma and Maria. Even worse, the Jones Act is an obstacle to recovery.³⁷

After Hurricane Maria hit Puerto Rico, President Trump first hesitated to issue a Jones Act waiver. Following a request from the governor of Puerto Rico, Trump issued a 10-day waiver, but it was not long enough to allow ships to respond to the crisis. A Norwegian-flagged ship that was docked in New Orleans offered to take supplies to Puerto Rico, but the waiver expired before it could complete its voyage. Similarly, Greenpeace representatives discovered that their Dutch-flagged ship was not allowed to carry supplies from New York City and unload them in San Juan.³⁸

According to US Customs & Border Protection data, despite the short duration of the Jones Act waiver, there were 10 international vessels that carried diverse supplies like baby food, water, generators, diesel and other goods from US ports to Puerto Rico.

³⁶ Prevost, Chad (2018). The U.S. has borne the Jones Act long enough. Freight Waves, July 2, 2018.

³⁷ Grennes Thomas (2017). The Jones Act Revisited. Mercatus Center, George Mason University. Pages 1 and 4.

³⁸ Ibid.

**Foreign Vessels that Arrived in Puerto Rico Under the Hurricane Maria Waiver
501(a) of September 28, 2017**

<u>#</u>	<u>Vessel Name</u>	<u>Flag</u>	<u>IMO Number</u>	<u>Commodities</u>	<u>Port of Lading</u>	<u>Port of Discharge</u>
1	Betty K VI	Panama	8801216	Restoration equipment	Miami, FL	San Juan, PR
2	Apollon	Bahamas	9289532	Diesel	New Orleans, LA	Yabucoa, PR
3	Maersk Messina	Singapore	9544592	Gasoline	Bayonne, NJ	San Juan, PR
4	MBC Rose	Italy	9497000	Rice, dried grains	New Orleans	San Juan, PR
5	Clipper Newhaven	Bahamas	9473248	Drinking water	Baltimore, MD	Ponce, PR
6	Lolland	Liberia	9480124	Drinking water	Houston, TX	San Juan, PR
7	Nera II	Togo	8502365	Utility trucks	Miami, FL	San Juan, PR
8	Adventure of the Sea	Bahamas	9167227	Baby food, diapers, canned food, consumables, AC units, generators	Fort Lauderdale, FL	San Juan, PR
9	Meridian Express	Panama	9596272	Heating oil	Beaumont, TX	San Juan, PR
10	Iver Experience	India	9207716	Diesel	New Orleans, LA	San Juan, PR

Source: US Customs & Border Protection, October 27, 2017 and <https://www.marinevesseltraffic.com>

In October 2017, importers affirmed that the little use of the waiver reflects the short time granted by the federal government. "From the beginning, we said that thinking that 10 days were enough was absurd. A commercial ship requires much more than 10 days to be loaded."³⁹

After Hurricane Maria struck Puerto Rico, many members of Congress, including Sen. John McCain, Sen. Mike Lee (R-Utah) and Rep. Nydia Velázquez (D-NY), have called for a waiver or a permanent exemption from the Jones Act for Puerto Rico. Following a study of the Puerto Rican economy, the Federal Reserve Bank of New York called for a five-year waiver of the Jones Act for Puerto Rico.⁴⁰

In September 2018, several private sector trade associations insisted in the total repeal of federal cabotage laws, since they also adversely affect energy costs on the Island. They

³⁹ El Nuevo Dia, October 18, 2017. Debate on cabotage laws revives.

⁴⁰ Ibid.

also indicated that the firm endorsement of the Ricardo Rosselló government and leaders of the Puerto Rican Senate for a temporary waiver of federal cabotage laws for the maritime transport of products related to the energy industry or at least natural gas, is an acknowledgment that cabotage laws adversely impact the cost of energy, both for natural gas and gasoline.⁴¹

The quality and characteristics of the Jones Act fleet are increasingly out of sync with the demands of the military. Moreover, the nature of modern warfare calls the Jones Act's utility into question.⁴²

The American Maritime Partnership, a US maritime industry coalition, claims Adam Smith as a supporter of the Jones Act of 1920 because he made a national defense argument for the British Navigation Acts in the 1700s. The relevance of this point to modern transportation is a bit of a stretch, since there were no airplanes, railroads, trucks, or modern pipelines to substitute for ships in the 1700s. Furthermore, the British were wise enough to repeal their Navigation Acts in 1848.⁴³

2. *Jobs*

Cabotage is recognized as being important to many countries. However, the effectiveness of cabotage laws in preserving employment and national fleets has been questioned, and cabotage regulations have been relaxed within the European Union and elsewhere without obvious downside costs. Therefore, in view of the benefits that followed domestic liberalization in other economic sectors, it is suggested that those countries that restrict cabotage should consider removing those provisions. Even if it is not politically

⁴¹ El Nuevo Dia, September 10, 2018. MIDA insists on a total repeal.

⁴² Grabow, Colin, Manak, and Ikenson (2018). The Jones Act: A Burden America Can No Longer Bear. Cato Institute. Policy Analysis, June 28, 2018 | Number 845. p. 8.

⁴³ Grennes Thomas (2017). Op. cit. p.5.

feasible to achieve full liberalization immediately, serious consideration should be given to setting a time frame for such liberalization.⁴⁴

Increasingly complex supply chains make the calculation of job creation difficult. American shipyards are using an increasing percentage of foreign components, from ship design to engines and electronics. Thus, some of the jobs created by the Jones Act are located overseas.⁴⁵

3. *US Shipyards and Maritime Merchant Fleet*

The literature review shows that the Jones Act failed to keep the US as a major player in the shipbuilding industry and also failed to develop a strong US maritime merchant fleet.

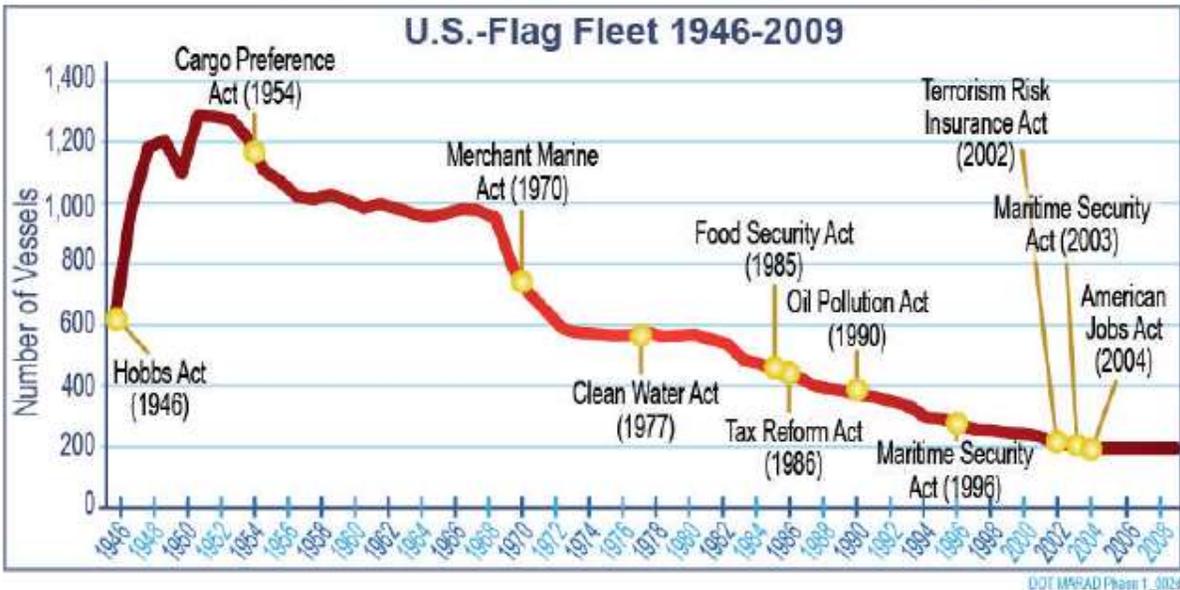
In April 1956, the world's first container ship – the Ideal X – set sail from New Jersey. A year later in Seattle, the world's first commercially successful airliner, Boeing's 707, made its maiden flight. Both developments slashed the cost of moving cargo and people. Boeing still makes half the world's airliners. But America's shipping fleet, representing 17% of the global total in 1960, accounts for just 0.4% today (2017).⁴⁶

⁴⁴ OECD (2001), Organization for Economic Cooperation and Development (2001), Regulatory Issues in International Maritime Transport, Paris: OECD, Directorate for Science, Technology and Industry, 12 August, www.oecd.org. p.11

⁴⁵ Grennes Thomas (2017). The Jones Act Revisited. Mercatus Center, George Mason University. p.3.

⁴⁶ The Economist, October 5, 2017. How protectionism sank America's entire merchant fleet.

Figure 1: U.S.-Flag Oceangoing Fleet 1946-2009
 (Privately-Owned Vessels of 1000 Gross Tons or More)³⁹
 Sources: Lloyd's Register; 'Compilation of Maritime Laws', MARAD, 2008



Source: Price Waterhouse Cooper. (2011). *Study of the Impediments to U.S. -Flag Registry*. p. 17.

US cabotage provisions apply, in some form or degree, to other transportation modes, such as aviation, rail and trucking. While cabotage principles are similar, no US-built requirement exists for other transportation modes in the US.⁴⁷

According to the GAO:

“Puerto Rico is subject to all Jones Act requirements. However, under statute, U.S. coastwise laws such as the Jones Act generally do not apply to cargo transported between the United States and certain other insular areas, including the U.S. Virgin Islands. In addition, under statute, vessels engaging in domestic trade between the United States and certain other insular areas, including Guam, require only a registry endorsement (i.e., U.S.-flag registry without the U.S.-build requirement).”

⁴⁷ GAO (2013). *Characteristics of the Island’s Maritime Trade and Potential Effects of Modifying the Jones Act*. p. 2.

Respected authority Drewry Shipping Consultants Ltd. in their Container Insight Weekly (WK-46) published November 2013, called the Jones Act “an increasingly expensive luxury” and validated the Hawaii Shippers’ Council estimates that US shipbuilding costs are 4 to 5 times higher than building a comparable ship in South Korea or Japan.⁴⁸

The high cost of US ship construction coupled to the Jones Act’s absolute prohibition on the importation of foreign-built vessels has led to an inefficient domestic transportation market sector saddled with an artificial shortage of ships, while the world is actually well supplied with modern and safe tonnage.⁴⁹

In 2014, Sea Star and Crowley Maritime announced they planned to build two new containerships each, in US shipyards, to replace their aging vessels. The new ships have a capacity of some 3,000 TEUs and cost about \$200 million apiece. The ships were built under license to foreign shipyards which created their design. Had these ships been purchased directly from the companies that designed them and built at one of those companies’ foreign shipyards, the cost would have been in the range of \$40 million to \$50 million each.⁵⁰ Newly built, more expensive ships will add operating costs for US and international carriers. The new and more expensive fleet would, most definitely, translate into higher ocean freight prices for the CONUS/PR trade, and higher overall goods’ prices for Puerto Rican residents. To build a \$200 million ship could be a great investment for states that have shipyards, but at the end of the day, they would pass the bill on to Hawaii, Puerto Rico and the other jurisdictions that subsidize the shipbuilding industry.

⁴⁸ Hawaii Shippers’ Council (2013). Respected maritime authority calls Jones Act an “expensive luxury”. Grassroot Institute of Hawaii, Michael Hansen, Nov 21, 2013.

⁴⁹ PR Planning Board (2012) Economic Report to the Governor 2012. Economic Impact of the Jones Act on the Economy of Puerto Rico: Discussion, Analysis and Measure. p. 81.

⁵⁰ Hawaii Shippers’ Council (2014). Testimony of Michael N. Hansen before the Senate of Puerto Rico Commission on Civil Rights, Participation, and Social Economy in the Matter of Senate Resolution 237.

It is important to acknowledge that while the Jones Act requires the ships to be built in the US and to be US owned, it does not require the shipyards to be US owned as well. Thus, many US shipyards are foreign owned or have large foreign investors.⁵¹

The high cost and other inefficiencies of US shipyards caused in part by the Jones Act have resulted in the US maritime merchant fleet to shrink in a few decades. In 2000, the US State Department conducted a study called "Role of The Maritime Industry in the United States," which compared the shipping companies of the world versus the US, in terms of cargo and passengers. The study determined there was no category in which the US Navy was on par with foreign marines and shipping companies, and that the US merchant marines controlled only 1.7% of the world's maritime traffic in 2000.⁵²

World and U.S. Merchant Fleets Thousands of Deadweight Tons. April 1, 2000			
	<u>U.S. Flag</u>	<u>All Flags</u>	<u>US % of Total</u>
Container Ships	2,990	63,967	4.7%
Dry Bulk	579	276,196	0.2%
Tanker	8,515	324,503	2.6%
Roll-on/Roll-off	554	14,542	3.8%
Cruise/Passenger	7	1,205	0.6%
Other	696	82,875	0.8%
Total	13,341	763,288	1.7%

Source: US Department of State. (2000) Role of the Maritime Industry in the United States.

The US Department of Commerce stated in May 2001, in a study entitled "National Security Assessment of the US Shipbuilding and Repair Industry," that US shipyards only build about 1% of large commercial ships, and they are being hired less and less for boat construction. The study found that vessel operators tied to the cabotage laws (i.e. the carriers) have governmental incentives to continue using old boats (up to 40 years old),

⁵¹ For examples, see: <https://www.vt-systems.com/capabilities/commercial-shipbuilding>, <http://www.phillyshipyard.com/s.cfm/1-9/History>.

⁵² Senate of Puerto Rico, Commission on Civil Rights, Participation, and Social Economy (2015) Op. cit.

instead of replacing them with new ships due to the high cost of construction, which in turn results in more costs for consumers.⁵³

The number of oceangoing ships (vessels at least 400 feet in overall length) produced in the US has steadily declined, from 45 per year in 1953 to five per year in 2015.⁵⁴

The US merchant fleet is considered old, restrictive and requires more maintenance. However, US ships are smaller, but can transport bigger shipment containers than the ones used by foreign ships. European ships use 40-foot containers versus US ships that use up to 53-foot containers. ⁵⁵.

Just as the Jones Act has contributed to the decline of US shipbuilding, it has also impeded the goal of creating a ready reserve of merchant mariners.⁵⁶

⁵³ Senate of Puerto Rico, Commission on Civil Rights, Participation, and Social Economy (2015) Op. cit.

⁵⁴ Grennes Thomas (2017). The Jones Act Revisited. Mercatus Center, George Mason University. p.3.

⁵⁵ Cruz et al (2014) The Maritime Laws Of The United States of America And Their Impact In Puerto Rico's Current Economy. Inter Metro Business Journal Spring 2014 / Vol. 10 No. 1.

⁵⁶ Grabow, Colin, Manak, and Ikenson (2018). The Jones Act: A Burden America Can No Longer Bear. Cato Institute. Policy Analysis, June 28, 2018 | Number 845. p. 7.

IV. Shanghai Containerized Freight Index (SCFI)

The Shanghai Containerized Freight Index (SCFI) is a highly cited metric prepared by the Shanghai Shipping Exchange (SSE)⁵⁷ that reflects the fluctuation of spot freight rates on export container-transport market from Shanghai to several destinations.⁵⁸ The Chinese government created this index in 2005 and revised it in 2009 with the following purposes:

- Attract more buyers and sellers to local markets. By aggregating the movement of several market securities into one easy-to-read benchmark, an index can help efficiently match supply and demand by communicating the health of a market.
- Offer a transparent market signal for both shippers and users of shipping services as to what is reasonable pricing. Some shipping contracts are tied to this index.
- Optimize China's export container freight index system.

What information is included in the SCFI?

The SCFI reflects the ocean freight rates and the associated seaborne surcharges of individual shipping routes on the spot market.

Shipping routes: Major 13 container trade routes from Shanghai to the following regions: Europe, Mediterranean Sea, US West Coast, US East Coast, Persian Gulf, Australia/New Zealand, West Africa, South Africa, South America, West Japan, East Japan, Southeast Asia, Korea.

Ports of destination: Base ports were defined in each individual trade route, e.g.:

Europe – Hamburg/Rotterdam/Antwerp/Felixstowe/Le Havre;

Mediterranean Sea – Barcelona/Valencia/Genoa/Naples;

US West Coast – Los Angeles/Long Beach/Oakland;

⁵⁷ SSE is a nonprofit institution sponsored by the Chinese government, which provides premises, facilities and information to shipping-related businesses.

⁵⁸ Shanghai Shipping Exchange, <https://en.sse.net.cn/indices/fqaennew.jsp>

US East Coast – New York/Savannah/Norfolk/ Charleston;

West Japan – Osaka/Kobe;

East Japan – Tokyo/Yokohama

Price type: Defined prices are mainstream booking prices between major container lines and shipper or freight forwarders on the spot market, with a statistic concept known as “mode.” This price is not affected by the specialty of ship’s type, ship’s age, carrier or transport volume.

Surcharges: Seaborne surcharges include:

Bunker Adjustment Factor (BAF)/ Fuel Adjustment Factor (FAF)/ Low Sulphur Surcharge (LSS)

Emergency Bunker Surcharge (EBS) / Emergency Bunker Additional (EBA)

Currency Adjustment Factor (CAF)/ Yen Appreciation Surcharge (YAS)

Peak Season Surcharge (PSS)

War Risk Surcharge (WRS)

Port Congestion Surcharge (PCS)

Suez Canal Transit Fee/Surcharge (SCS)/ Suez Canal Fee (SCF)/ Panama Transit Fee (PTF)/ Panama Canal Charge (PCC).

Unit: US Dollars per Forty-foot Equivalent Unit (USD/FEU) is for US West Coast and East Coast shipping routes and US Dollars per Twenty-foot Equivalent Unit (USD/TEU) for all other shipping routes.

Trade and transport term: Export CIF (Cost, Insurance and Freight), CY-CY (Container Yard)

Container type/cargo description: General dry cargo container (General cargo is for US West Coast and East Coast services)⁵⁹

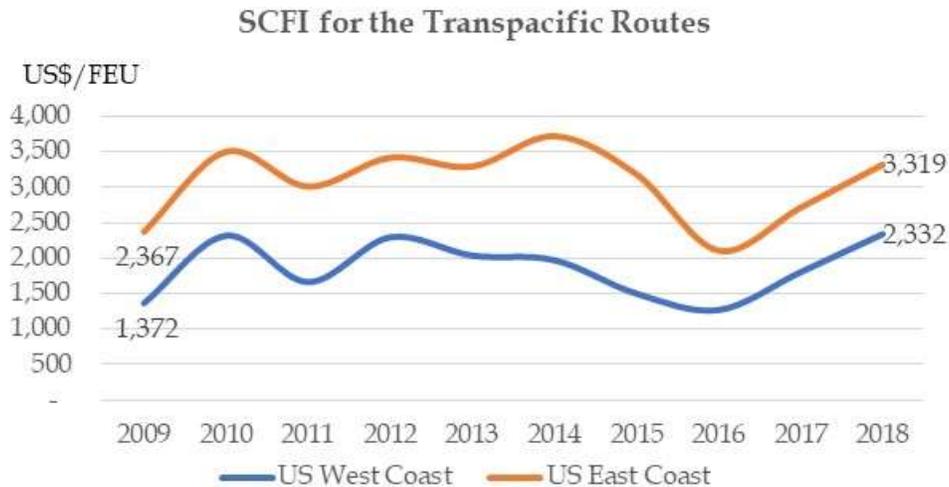
Example of Weekly Information Provided by the SCFI

Shanghai Containerized Freight Index					
Description	Unit	Weighting	Previous Index 2018-09-21	Current Index 2018-09-28	Compare With Last Week
Comprehensive Index			890.21	870.58	-19.63
Line Service:					
Europe (Base port)	USD/TEU	20.0%	766	735	-31
Mediterranean (Base port)	USD/TEU	10.0%	804	767	-37
USWC (Base port)	USD/FEU	20.0%	2343	2332	-11
USEC (Base port)	USD/FEU	7.5%	3502	3319	-183
Persian Gulf and Red Sea (Dubai)	USD/TEU	7.5%	365	354	-11
Australia/New Zealand (Melbourne)	USD/TEU	5.0%	538	532	-6
East/West Africa (Lagos)	USD/TEU	2.5%	1773	1719	-54
South Africa (Durban)	USD/TEU	2.5%	753	752	-1
South America (Santos)	USD/TEU	5.0%	1098	976	-122
West Japan (Base port)	USD/TEU	5.0%	228	228	0
East Japan (Base port)	USD/TEU	5.0%	228	228	0
Southeast Asia (Singapore)	USD/TEU	7.5%	137	138	1
Korea (Pusan)	USD/TEU	2.5%	165	162	-3
Note: The freight rate includes ocean freight and surcharges, i.e.: 1 BAF/FAF/LSS* 2 EBS/EBA 3 CAF/YAS 4 PSS 5 WRS 6 PCS 7 SCS/SCF/PTF/PCC *Low Sulphur Surcharge (LSS) was included from end of year 2014.					
Base Port: Report Freight Rates of Base Ports Mediterranean Sea—Barcelona/Valencia/Genoa/Naples Europe—Hamburg/Rotterdam/Antwerp/Felixstowe/Le Havre USWC—Los Angeles/Long Beach/Oakland USEC—New York/Savannah/Norfolk/Charleston West Japan—Osaka/Kobe East Japan—Tokyo/Yokohama					
Issued by SSE					

According to the SCFI's Trans-Pacific routes, shippers are paying some of the highest ocean-freight spot rates to move products from China to the US in more than two years.

⁵⁹ Shanghai Shipping Exchange, <http://en.sse.net.cn/indices/fqaennew.jsp>

As of September 28, 2018, it costs \$2,332 to ship a 40-foot container from Shanghai to the West Coast of North America. It costs \$3,319 to move a 40-foot container from China to the East Coast of North America.⁶⁰



Source: United Nations Conference on Trade and Development, *Review of Maritime Transport 2017 and Shanghai Shipping Exchange*.

Who provides the information to the SCFI?

The sample data for SCFI calculations is collected from the 37 panelists of the broad China Containerized Freight Index (CCFI), including liner companies and shipper/freight forwarding enterprises.⁶¹ As of 2018, 20 liner companies and 17 shippers/freight

⁶⁰ Shanghai Shipping Exchange and <https://www.supplychaindive.com/news/industry-pulse-August-rates-rise-factors/531957/>

⁶¹ Difference between Liner and Forwarder: A **shipping line** is a company that owns and operates vessels, responsible for the handling and transporting of cargo aboard their ships. They deal with the cargo from point of origin to destination (port to port), transiting regular routes on fixed schedules aboard their own vessels. A **freight forwarder** arranges shipments for individuals and companies; they may also be the carrier themselves. They are often the link between shipper and carrier. Forwarders typically assist shippers across the whole journey to ensure no logistical hiccups occur. They can also provide extra services in the form of advising on packing, completing the necessary paperwork (like bills of lading), providing insurance coverage and custom clearing services. Source: <https://www.tuscorlloyds.com/shipping-line-vs-forwarder/>

forwarders provide the freight information to Shanghai Shipping Exchange. Their names are as follows:

- a) Panelists of liner companies (in alphabetic order of English abbreviations): CMA-CGM, COSCO Shipping Lines Co., Ltd., Hamburg Süd (China) Limited, Hapag-Lloyd, Kline, Maersk, MOL, MSC, NYK, OOCL, PIL, RCL, Shanghai Hai Hua Shipping, Shanghai Jin Jiang Shipping, Sinotrans Container Lines, SITC Container Lines, Yang Ming Marine Transport Corp, EVERGREEN MARINE CORP. (TAIWAN) LTD., Korea Marine Transport (China) Co., LTD., Wan Hai Lines Ltd., T.S. LINES LIMITED, ZIM Integrated Shipping Services (China) Co., LTD.
- b) Panelists of shippers/ freight forwarders (in the alphabetic order of English): COSCO Logistics (Shanghai) , JHJ International Transportation Co., Ltd. , Orient International Logistics (Holding) Co., Ltd. , Shanghai Asian Development Int'l Trans Pu Dong Co., Ltd. , Shanghai Huaxing International Container Freight Transportation Co., Ltd. , Shanghai Jinchang Logistics Co., Ltd. , Shanghai Orient Express International Logistics Co., Ltd. , Shanghai Richhood International Logistics Co., Ltd. , Shanghai Viewtrans Co., Ltd. , Shangtex Group International Logistics Co., Ltd. (formerly named Shanghai Shenda International Transportation Co., Ltd.), SIPG Logistics Co., Ltd. , Sinotrans Eastern Co., Ltd. , Sunshine-Quick Group , UBI Logistics (China) Ltd. , Shanghai Sijin International Transportation Co., Ltd. , Shanghai Syntrans International Logistics Co.,Ltd. , and Shanghai BASHI YUEXIN logistics Development Co., Ltd.



Contrary to what happens with the panelists of the SCFI, none of the four JACs that serve Puerto Rico (Crowley, Tote Maritime, Trailer Bridge and National Shipping) disclose their private-contract prices in a government-validated platform.

This creates a market failure due to asymmetric information whereby maritime companies have a good sense of market prices while users of shipping services have little information.

Tropical Shipping and Tote Maritime are affiliated companies. Tropical Shipping publishes its list prices for container transportation from Canada to Puerto Rico. Tote Maritime does not publish list prices for container transportation from the United States to Puerto Rico.

Rate Search Filters

Port of Load: Canada, Halifax Seaport, NS.

Final Port of Discharge: Puerto Rico, San Juan

Commodity: Refrigerated Cargo NOS

Receive Date: 11/27/2018

Service Type:

Container Size:

Search Rates Reset

Rate search results are not a quote.
Please call Customer Care for Inland quotes.

Description of Rate Terms

CANADA, HALIFAX SEAPORT, NS. TO PUERTO RICO, SAN JUAN

Rate Number	Rate Description	Notes	Freight Rate
3261792	PC,\$2455/40X RE,OO,S/L,NHZ,[Exp:12/15/18]	Rate valid for trees, reset fee includes if required. Rate applicable only to address Isla Verde, Carolina, PR 00981.	\$2,455.00
3236906	PC,\$6000/40X RE,OO,S/L,NHZ,[Exp:12/31/18]	Christmas Tree Rate: inclusive of bunker, security, handling, peakseason, low sulfur, terminal inspection and BL. Freight must be prepaid prior to loading. Upon arrival of container, consignee must present cheque. If container is not returned within time allotted, cheque will not be returned.	\$6,000.00
3229056	PC,\$4582/40X RE,OO,S/L,NHZ [Eff:11/11/18]	Rate valid for fish.	\$4,582.00
3229055	PC,\$8195/40X RE,OO,S/L,NHZ [Eff:11/11/18]	APPLIES TO PRODUCE. Rate includes handling, landing and reefer maintenance.	\$8,195.00
3229054	PC,\$8837/40X RE,OO,S/L,NHZ [Eff:11/11/18]	Applies to frozen french fries. Rate includes handling, landing and reefer maintenance.	\$8,837.00
3229053	PC,\$12300/40X RE,OO,S/L,NHZ [Eff:11/11/18]	Rate is inclusive of handling and landing. Rate includes reefer maintenance.	\$12,300.00
3229024	PC,\$9840/20 RE,OO,S/L,NHZ [Eff:11/11/18]	Rate is inclusive of handling and landing. Rate includes reefer maintenance.	\$9,840.00



Tropical
SHIPPING
COMMITTED TO ISLAND LIFE

Would you like a quote? Please contact CustomerCare@tropical.com

(561) 881-3999

Rate Search Filters

Port of Load	<input type="text" value="Canada, Halifax Seaport, NS."/>	<p>Rate search results are not a quote. Please call Customer Care for Inland quotes.</p> <p>Description of Rate Terms</p>
Final Port of Discharge	<input type="text" value="Puerto Rico, San Juan"/>	
Commodity	<input type="text" value="Cargo NOS"/>	
Receive Date	<input type="text" value="11/27/2018"/>	
Service Type	<input type="text"/>	
Container Size	<input type="text"/>	

CANADA, HALIFAX SEAPORT, NS. TO PUERTO RICO, SAN JUAN

Rate Number	Rate Description	Notes	Freight Rate
3229044	PC,\$5850/40X DB,OO,S/L,NHZ [Eff:11/11/18]	Rate is inclusive of handling and landing.	\$5,850.00
3229017	PC,\$4975/20 DB,OO,S/L,NHZ [Eff:11/11/18]	Rate is inclusive of handling and landing.	\$4,975.00

Page 1 of 1
1 - 2 of 2 items

Conclusions

- The SCFI provides valuable information regarding freight rates of different shipping routes from China. This index helps investors, companies and the government to track changes in prices in the transportation sector in China. This index also helps companies to offset industry risks by using the derivatives market.
- The lack of publicly available information on freight rates validated by the Puerto Rico and/or US governments, and the limited number of carriers results in a huge advantage to carriers at the time of negotiating freight contracts with importers, thus opening the door to possible price coordination among shippers. In contrast, the behavior of shipping rates from China to different locations around the world can be traced using the Shanghai Containerized Freight Index (SCFI) and the China Containerized Freight Index (CCFI)
- The concentration of the market and the lack of publicly available information prevents the government from guiding potential investors and enables violations of antitrust laws in maritime transport, as has happened in the past.

V. Transportation Costs Compared

Survey participants agreed to submit a matrix of information regarding transportation costs from different jurisdictions. Information is presented in aggregated form, with no possibility of tracing the actual cost of individual firms. For confidentiality reasons, only Advantage had access to the raw data.

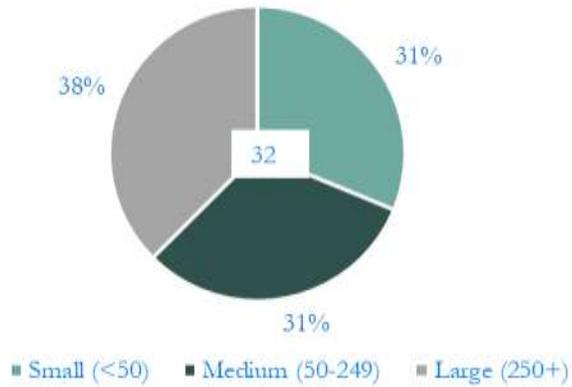
A. Survey Participants' Profile

In mid-October 2018, a list of possible companies was selected to be included in the Survey of Maritime Transportation Practices. In order to have a diverse and representative sample, the list consisted of 46 companies distributed in small, medium and large companies. Together with a Confidentiality Agreement, Advantage sent a questionnaire in Excel format consisting of seven spreadsheets with questions about the company profile and detailed tables about the port of origin, number of imported containers, size of the container, port-to-port freight rates, surcharges, total transportation cost, and value of the merchandise imported. As of the end of November 2018, 32 of the 46 companies responded the survey. This represents a 70% response rate, which is very high despite the sensitive information involved.

Among the participants, all sizes of companies were well represented. Among the type of company, the largest group was distributors with 47% of total participants. **This means that the sample is biased towards larger importers. These importers obtained better terms than the average importer, thanks to Time and Volume agreements. Therefore, the results of the survey probably understate the impact of the Jones Act on maritime costs.**

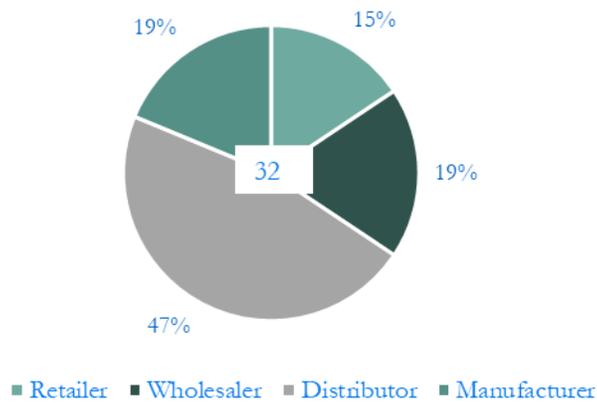
As expected, the majority of the cargo reported in the survey was food. As an indication of linkages, on average, each respondent does business with 524 Puerto Rico vendors and 72 non-local vendors.

Survey Participants by Size - 2018 (Number of employees)



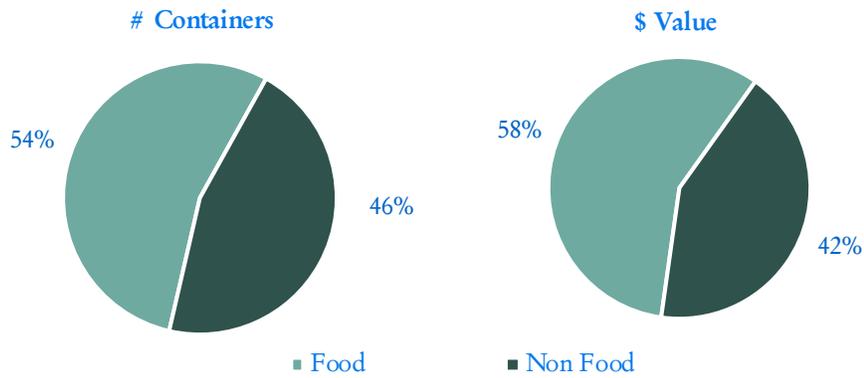
Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

Survey Participants by Type - 2018



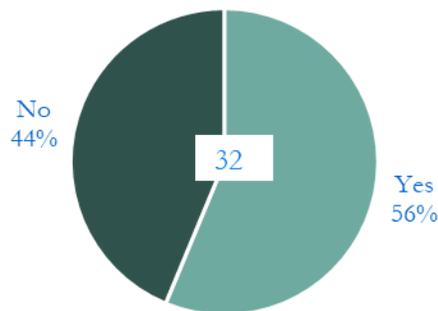
Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

Distribution of Imports by Type (Jan-Sep 2018)



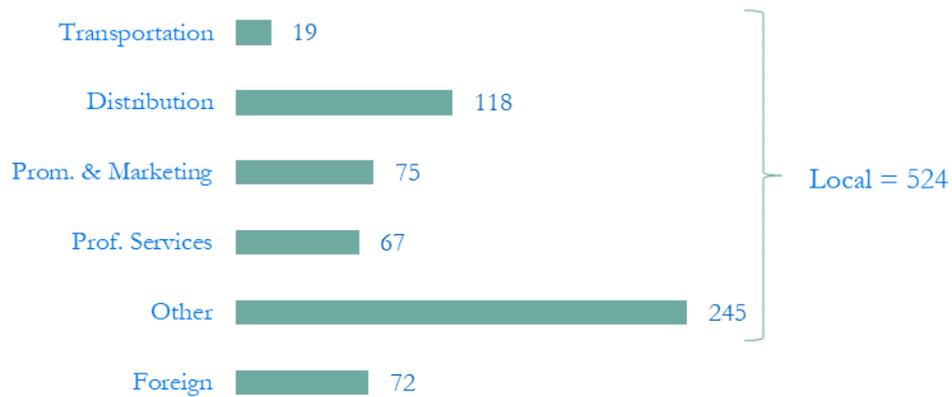
Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

Has a Time Volume Agreement?



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

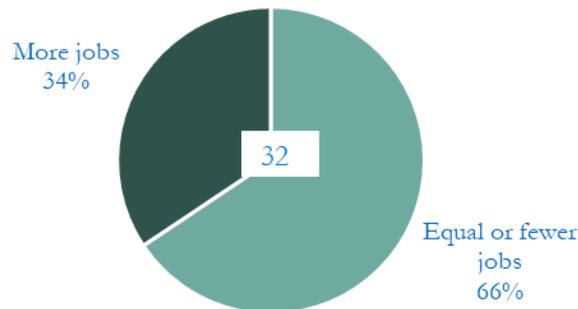
Average Local and Foreign Number of Vendors



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

A significant finding was that the impact of Hurricane Maria in September 2017. The majority of respondents (66%) have equal or fewer employees in 2018, compared with 2017.

2018/2017 Change in Employment (Jan - Sep)



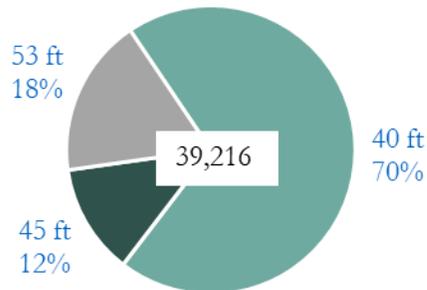
Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

B. Transportation Costs Compared

Among the 32 companies surveyed, most of their volume, or 70% of the containers imported between January to September 2018 were 40-foot containers, 18% were 53-foot containers, and 12% were 45-foot containers.

There are weight restrictions in terms of 53-foot containers. In the case of refrigerated containers, there are no 53-foot containers.

**Number of Containers Imported by Size -
YTD 2018-Sep**



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

The participation and sample size of the survey is very representative of the food and beverage industry. The survey included information on 32 companies with nearly 40,000 containers transported over nine months (January 2018 to September 2018).

According to the PR Planning Board, the total value of Puerto Rico food, feeds and beverages imports amount to \$4.6 billion in Fiscal Year 2018. The value of the imports covered in the survey for a nine-month period was \$1.4 billion. Although part of the survey participants' imports are non-food items like cleaning products, personal care products and cookware, among others, the majority of their imports are food products.

Thus, the survey is a sample of the consumer goods impacted by the Jones Act in Puerto Rico and certainly covers an important part of food imports into Puerto Rico.

Information received but not included

During the Survey process, Advantage received the following information but it was not included in the freight rates calculations:

1. **Freight rates of 20-foot containers** - Advantage received information of a small number of 20-foot containers. Since 20-foot containers are not the standard in the shipping industry and reflect specific market or delivery situations, the data was not used.
2. **Freight rates from the Dominican Republic** - Advantage received information on a number of containers from the Dominican Republic. Due to the short distance between the Dominican Republic and Puerto Rico, this market is qualitatively different from other shipping routes. Part of the containers were transported using a vessel whose main business is passenger transportation service between Puerto Rico and the Dominican Republic and is owned by Ferries del Caribe. The other important company that provides cargo transportation services from the Dominican Republic is Priority RoRo that also is part of the consortium of Ferries del Caribe. Due to the particular characteristics of this market, the data was not used.

Estimation of Comparable Freight Rates (US Carrier vs Non-US)

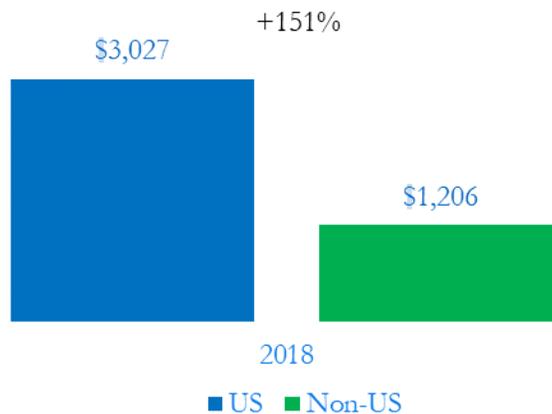
In order to compare freight rates of ports with different distances to Puerto Rico, (i.e. Jacksonville vs Shanghai, China); Advantage normalized the freight rates by 1,000 nautical miles. Advantage also adjusted the freight rates by container size, expressing all rates in \$US Dollars per Forty Equivalent Unit (FEUs). Advantage used the following capacity of container units:

Capacity of Container Units	
Container Size	Capacity (cu.ft.)
40'	2,694
45'	3,043
53'	3,857

Source: Reeve & Associates and Estudios Técnicos "Impact of Jones Act on Puerto Rico," published in July 2018. . Exhibit II-9, p. 13.

The hard data provided by the respondents confirms the well-known fact within the food industry that the use of the JACs is considerably more expensive than international carriers. According to the results of the survey, to import a container in the CONUS/PR trade using a Jones Act Carrier costs \$3,027 per 1,000 nautical miles, compared with \$1,206 per 1,000 nautical miles in other international trades. This is a 151% difference.

Freight Rate by Market - YTD-Sep (Weighted avg. rate per 1,000 nautical miles, \$ per FEU)



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

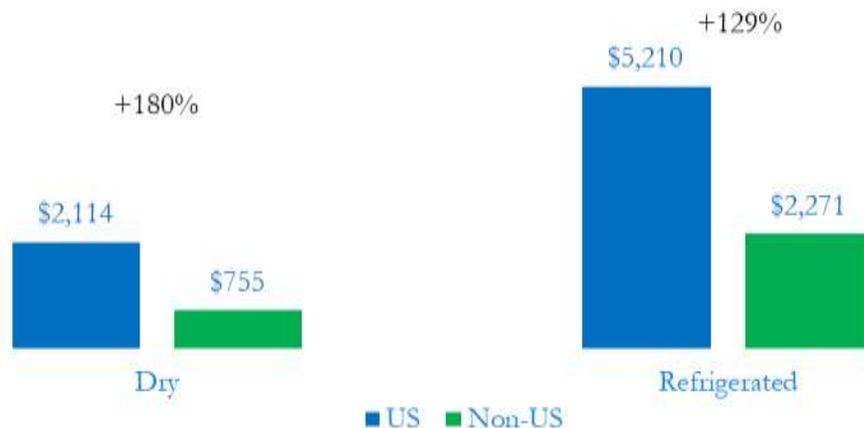
Among the type of container used by companies, refrigerated containers, which contain basic food products like meat, fruits, and vegetables, show an important difference in freight rates. To import refrigerated containers from the US using Jones Act Carriers costs 129% more than to import food products using international carriers. Regular

merchandise is imported in dry containers. The use of JACs increases the cost to transport dry containers by 180%.

It is important to stress that this 151% higher prices in the CONUS/PR trade, compared to international shipping, is using weighted average prices for mainly medium and large companies with Time Volume Agreements. According to food industry insiders, the prices are higher for occasional shippers or small companies that import containers at spot prices.

In addition, the data does not consider the additional cost of land freight incurred by importers due to the limited number of the CONUS ports serviced by JACs.

Freight Rate by Market & Type - YTD 2018-Sep
(Weighted avg. rate per 1,000 nautical miles, \$ per FEU)



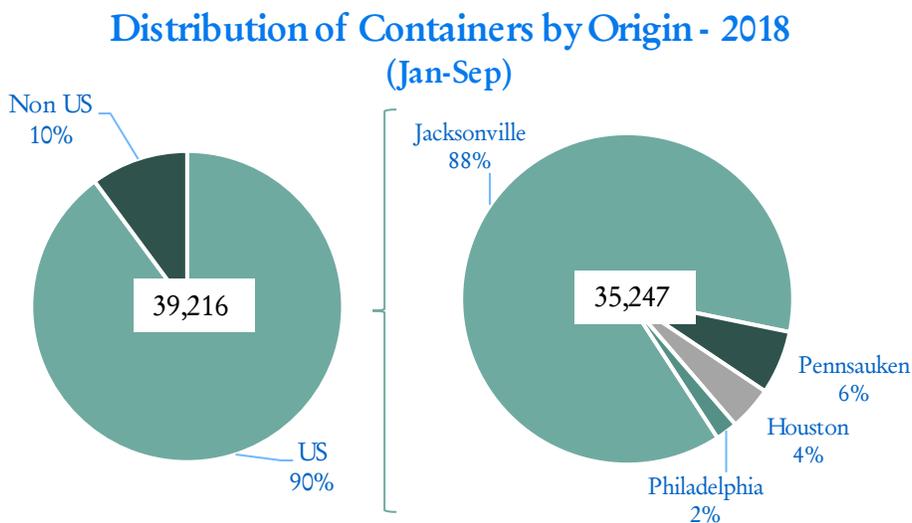
Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices, November 2018.

The vast majority of containers reported in the survey come from the US with 90% of the total number of containers imported between January and September 2018. Among these containers imported from the US, the concentration in the port of Jacksonville is huge. Some 88% of the containers imported from the US have Jacksonville as its port of origin. (Minor origin ports are Pennsauken, NJ; Houston, TX; and Philadelphia, PA.)

The high concentration in Jacksonville represents a risk and a cause of extra costs to surveyed companies.

The risk is as follows: Having three out of four carriers operating out of Jacksonville⁶² means that every atmospheric, labor (i.e. strikes), or accidental event that impacts Jacksonville or the surrounding areas would impact the maritime transportation in the CONUS/PR trade. The reported bottlenecks in Jacksonville in the aftermath of Hurricane Maria are a case in point. Not only was ship capacity a problem but also the availability of equipment and truckers, among other issues, to deal with the sudden peak in demand.

The extra costs related to this concentration of activities in the port of Jacksonville is that food industry companies have to move their containers by land, at higher prices, regardless of their origin, to the JACs preferred port of Jacksonville. This surely means economies of scale for the JACs but also higher total costs of transportation for Puerto Rico.

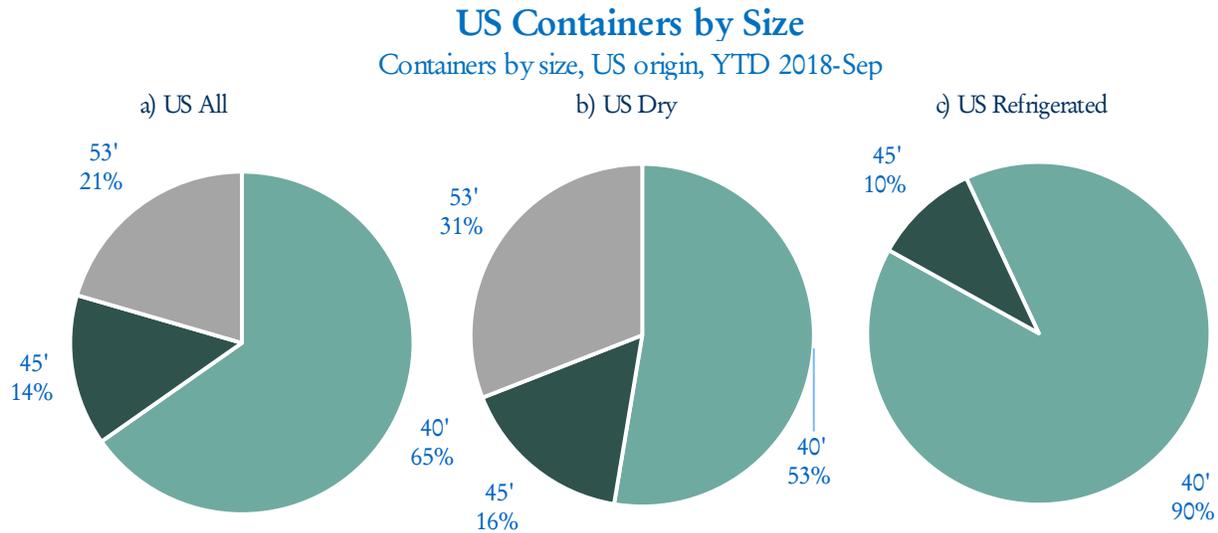


Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

Most of the containers imported from the US are 40-foot long. This is the case for both dry and refrigerated containers. The use of 53-foot containers is restricted to dry containers because there are no 53-foot refrigerated containers. Most of the merchandise sold by

⁶² Crowley, Tote Maritime and Trailer Bridge

respondents (i.e. importers) is food, so they mostly do not participate in the JACs' alleged benefits of using oversized containers.



Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

Between January to September 2018, the JACs charged \$2,146 per dry container and \$5,357 per refrigerated container per 1,000 nautical miles for containers moved from Jacksonville to Puerto Rico. These Jacksonville rates are 20% and 41% more expensive than the freight rates from Houston and Pennsauken, respectively, for dry and refrigerated containers.

Freight Rate by Port - YTD 2018-Sep (Weighted avg. rate per 1,000 nautical miles, \$ per FEU)					
#	Port	Dry	#	Port	Refrigerated
1	Jacksonville	\$2,146	1	Jacksonville	\$5,357
2	Pennsauken	\$1,957	2	Philadelphia	\$4,276
3	Houston	\$1,860	3	Houston	\$3,814
4	Philadelphia	\$1,790	4	Pennsauken	\$3,793
Difference between 1st and 4th		20%			41%

Source: Advantage Survey of Maritime Transportation Practices. November 2018.

The survey's sample includes 39,216 containers imported between January and September 2018. Most of the containers—27,640—were dry containers and 11,576 were

refrigerated containers. The four US ports preferred by the JACs represents 90% of the total containers' sample.

Number of Containers by Port of Origin (Jan - Sep 2018)					
#	Port	Dry	Refrigerated	Total	% total
1	Jacksonville	21,529	9,269	30,798	79%
2	Pennsauken	1,698	487	2,185	6%
3	Houston	1,367	146	1,513	4%
4	Philadelphia	258	493	751	2%
5	Other Asia	628		628	2%
6	Cartagena, Colombia	492	94	586	1.5%
7	Guayaquil, Ecuador	32	438	470	1.2%
8	Other Latin America	367	78	445	1.1%
9	Callao, Peru	388	47	435	1.1%
10	Shanghai, China	170	67	237	0.6%
11	Other Europe	206	30	236	0.6%
12	Veracruz, Mexico	87	23	110	0.3%
13	Other	418	404	822	2%
	Total	27,640	11,576	39,216	100%

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018. Some ports were hidden to maintain confidentiality.

The following table shows that the freight rates of a FEU imported from the four US ports are the most expensive rates for both dry and refrigerated containers.

The results are overwhelming: to import one dry container from Jacksonville costs at least two times more than to import from other international ports. The difference in the rates of refrigerated containers is lower than the difference for dry containers. However, the expensiveness of the US ports due the Jones Act is daunting.

Freight Rate by Port - YTD 2018-Sep (Weighted avg. rate per 1,000 nautical miles, \$ per FEU)					
#	Port	Dry	#	Port	Refrigerated
1	Jacksonville	\$2,146	1	Jacksonville	\$5,357
2	Pennsauken	\$1,957	2	Philadelphia	\$4,276
3	Houston	\$1,860	3	Houston	\$3,814
4	Philadelphia	\$1,790	4	Pennsauken	\$3,793
5	Callao, Peru	\$1,187	5	Cartagena, Colombia	\$2,565
6	Cartagena, Colombia	\$899	6	Callao, Peru	\$2,527
7	Other Europe	\$843	7	Guayaquil, Ecuador	\$1,865
8	Veracruz, Mexico	\$742	8	Veracruz, Mexico	\$1,744
9	Guayaquil, Ecuador	\$713	9	Other Latin America	\$1,234
10	Other Latin America	\$513	10	Other Europe	\$952
11	Other Asia	\$239	11	Shanghai, China	\$458
12	Shanghai, China	\$221	12	Other Asia	N/A
13	Other	N/A	13	Other	N/A

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

C. US Ports' Freight Rates vs Comparable Ports by Distance

In order to present another approach to compare US ports' freight rates vs non-US ports. Advantage compared freight rates of each of the four US ports from where the Jones Act Carriers depart (Jacksonville, Pennsauken, Philadelphia and Houston) with non-US ports with similar distances to Puerto Rico in nautical miles. In this analysis, Advantage used the weighted average freight rates from January to September 2018 provided by participants in the November 2018 survey, with neither container size adjustment nor distance normalization.

For each US port, Advantage presents two tables. The first table shows weighted average freight rates, including all sizes of containers. The second table shows only weighted average freight rates for 40-foot containers, which represent the majority of containers used by the respondents.

Jacksonville, Florida (1,102 nautical miles to Puerto Rico)

On average, using all container size data, it is 110% more expensive to import one dry container from Jacksonville to Puerto Rico compared with Panama/PR trade. This difference increases to 247% for refrigerated containers.

Comparing freight rates of Jacksonville with Cartagena, Colombia, the results show that it is 265% and 197% more expensive to import a container from Jacksonville to Puerto Rico than to import it from Cartagena, for dry and refrigerated containers, respectively.

Jacksonville's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per Container - All Container Sizes / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Jacksonville, FL	\$2,565	\$5,945	1,102
Panama	\$1,220	\$1,715	998
Cartagena, Colombia	\$703	\$2,004	781
Differences			
Jacksonville vs Panama	+110%	+247%	
Jacksonville vs Cartagena	+265%	+197%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

** Freight rates do not include container size adjustment or distance normalization.*

On average and using only information on 40-foot containers, it is 97% and 253% more expensive to import a 40-foot container from Jacksonville than to import the same container from Panama, for dry and refrigerated containers, respectively. Using the same comparison for Cartagena, Colombia, it is 242% and 202% more expensive to import a dry and refrigerated container to Puerto Rico, respectively, from Jacksonville.

Jacksonville's Freight Rates to PR vs Comparable Ports by Distance* (\$ per 40ft Container / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Jacksonville, FL	\$2,404	\$6,054	1,102
Panama	\$1,220	\$1,715	998
Cartagena, Colombia	\$703	\$2,004	781
Differences			
Jacksonville vs Panama	+97%	+253%	
Jacksonville vs Cartagena	+242%	+202%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

* Freight rates do not include distance normalization.

Since Jacksonville represents 79% of the total number of containers imported from the US, these results are very representative of the difference in freight rates between US ports and non-US ports. In a previous section of this report, it was presented that in 2018, the CONUS/PR trade was 151% more expensive than the average of non-US ports.

Pennsauken, New Jersey (1,429 nautical miles to Puerto Rico)

The two non-US ports that are similar to Pennsauken are Veracruz, Mexico and Guayaquil, Ecuador. Guayaquil includes the costs associated with transporting containers through the Panama Canal. For this reason, the freight rate difference between Pennsauken and the comparable port by distance could be even greater.

On average and using all size containers, to import a dry and refrigerated container from Pennsauken is 117% and 72%, respectively more expensive than from Veracruz. To import a dry and refrigerated container from Pennsauken is 127% and 61%, respectively more expensive than from Guayaquil.

Pennsauken's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per Container - All Container Sizes / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Pennsauken, NJ	\$2,929	\$5,437	1,429
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Pennsauken vs Veracruz	+117%	+72%	
Pennsauken vs Guayaquil	+127%	+61%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

* Freight rates do not include container size adjustment or distance normalization.

On average and using only 40-foot containers data, to import a dry and refrigerated container from Pennsauken is 114% and 70%, respectively more expensive than from Veracruz. To import a dry and refrigerated container from Pennsauken is 123% and 60%, respectively more expensive than from Guayaquil.

Pennsauken's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per 40ft Container / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Pennsauken, NJ	\$2,885	\$5,399	1,429
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Pennsauken vs Veracruz	+114%	+70%	
Pennsauken vs Guayaquil	+123%	+60%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

* Freight rates do not include distance normalization.

Houston, Texas (1,752 nautical miles to Puerto Rico)

The two non-US ports that are similar to Houston, Texas are Veracruz, Mexico and Guayaquil, Ecuador. As previously mentioned, Guayaquil includes the costs associated with transporting containers through the Panama Canal. For this reason, the freight rate difference between Houston and the comparable ports by distance could be even greater.

On average and using all size containers, to import a dry and refrigerated container from Houston is 142% and 111% respectively more expensive than from Veracruz. To import a dry and refrigerated container from Houston is 152% and 98%, respectively more expensive than from Guayaquil.

Houston's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per Container - All Container Sizes / Jan-Sep 2018)			
Port	Dry	Refrigerated	Nautical Miles
Houston, TX	\$3,259	\$6,682	1,752
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Houston vs Veracruz	+142%	+111%	
Houston vs Guayaquil	+152%	+98%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

** Freight rates do not include container size adjustment or distance normalization.*

All containers used in the Houston/PR trade are 40-foot long, thus the table of all size containers and the table with 40-foot containers data are the same.

Houston's Freight Rates to PR vs Comparable Ports by Distance* (\$ per 40ft Container / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Houston, TX	\$3,259	\$6,682	1,752
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Houston vs Veracruz	+142%	+111%	
Houston vs Guayaquil	+152%	+98%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

** Freight rates do not include distance normalization.*

Philadelphia, Pennsylvania (1,400 nautical miles to Puerto Rico)

The two non-US ports that are similar to Philadelphia, Pennsylvania are also Veracruz, Mexico and Guayaquil, Ecuador. As mentioned, Guayaquil includes the costs associated with transporting containers through the Panama Canal. For this reason, the freight rate difference between Philadelphia and the comparable ports by distance could be even greater.

On average and using all container sizes, to import a dry and refrigerated container from Philadelphia is 100% and 89% respectively more expensive than from Veracruz. To import a dry and refrigerated container from Philadelphia is 109% and 77%, respectively more expensive than from Guayaquil.

Philadelphia's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per Container - All Container Sizes / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Philadelphia, PA	\$2,697	\$5,987	1,400
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Philadelphia vs Veracruz	+100%	+89%	
Philadelphia vs Guayaquil	+109%	+77%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

* Freight rates do not include container size adjustment or distance normalization.

On average and using only 40-foot containers data, to import a dry and refrigerated container from Philadelphia is 103% and 89%, respectively more expensive than from Veracruz. To import a dry and refrigerated container from Philadelphia is 112% and 77%, respectively more expensive than from Guayaquil.

Philadelphia's Freight Rates to PR vs Comparable Ports by Distance*			
(\$ per 40ft Container / Jan-Sep 2018)			
<u>Port</u>	<u>Dry</u>	<u>Refrigerated</u>	<u>Nautical Miles</u>
Philadelphia, PA	\$2,739	\$5,987	1,400
Veracruz, Mexico	\$1,348	\$3,168	1,817
Guayaquil, Ecuador	\$1,293	\$3,383	1,814
Differences			
Philadelphia vs Veracruz	+103%	+89%	
Philadelphia vs Guayaquil	+112%	+77%	

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices. November 2018.

* Freight rates do not include distance normalization.

This freight rates analysis, without adjusting by container size or using distance normalization, allow us to see the differences between the rates charged by the JACs in the CONUS/PR trade vs foreign carriers in international trades. The results are

overwhelming: under the framework of the Jones Act, to import from US ports using US-flag ships, constructed in the United States, owned by US citizens, and crewed by US citizens or US permanent residents, increases the maritime transportation costs from nearly 100% to more than 200%.

D. Land Transportation Issue - An Exercise for California

In addition to the higher shipping costs, the Jones Act imposes a burden on Puerto Rico due to the limited number of ports from where service is available. Containers have to be brought overland to a limited number of ports. Thus, the difference in shipping costs underestimate the true cost of the Jones Act to Puerto Rico.

Despite California being the largest state of the U.S., a major agricultural producer and the epicenter of the US trade with Asia, currently no respondent imports containers by sea from California. The literature review, interviews and the results of the survey support the explanation that this is due to the effect of the Jones Act. No Jones Act carrier departs from West Coast ports. This fact implies that food industry companies have to pay expensive land transportation services to move the merchandise from the West Coast to one of its four preferred ports in the East Coast.

In order to estimate the cost of the Jones Act premium, Advantage estimated what a food industry company currently pays to import a 40-foot container from California to Puerto Rico. This includes land transportation costs from California to Florida and maritime transportation costs from Jacksonville to Puerto Rico. Advantage compared these costs with the actual maritime freight rate from the San Antonio port in Chile. San Antonio and Los Angeles port in California have similar distances in nautical miles to Puerto Rico.

The results show that due to the Jones Act, it costs 279% more to import a dry container from California to Puerto Rico compared with the rate charged by foreign carriers for a similar distance.

**Estimate of Jones Act's Transportation Costs Premium from California to
(\$ per 40 ft Container)**

<u>#</u>	<u>Detail</u>	<u>Dry</u>	<u>Nautical Miles</u>
1	Maritime transportaion - Jacksonville to PR	\$2,404	
2	Overland transportation - California to Florida	\$7,000	
3	Multimodal Transportation Cost - California to PR	\$9,404	3,998
4	Maritime transportation - San Antonio, Chile to PR*	\$2,483	3,694
5	Difference (5)=(3)/(4)-1	279%	

VI. Interviews with Key Stakeholders

Advantage interviewed various key players in the food industry during the week of November 26-30, 2018. Their experience with the JACs could best be described as bittersweet. On the one hand, they acknowledge as positive the frequency and the lead time of the domestic shipping service and the commitment to the Island. On the other hand, the industry believes the service is overpriced, inefficient and with failures in the schedules due to the lack of competition and exclusive routes. Arrivals are mostly scheduled for Mondays and Fridays, but those arrival dates are often missed with vessels delaying a day or two off their expected time of arrival. In some industries (i.e. perishables goods), this delay is the difference between a good product and a damaged good.

The Jones Act makes for a very unstable market, prone to unexpected shocks. Experts in the industry recalled Horizon's abrupt exit from the shipping market in 2014 as a game changer, which implied a constraint in terms of available trading routes and containers capacity. El Faro's tragic sinking on October 2, 2015 was also highlighted by executives as they stated having logistics challenges for as long as two months afterwards. The most recent and most obvious of all was the shipping crisis in Puerto Rico in the aftermath of Hurricane Maria, with industry experts confirming that charter vessels were needed to ship regular merchandise due to FEMA's use of Crowley's ships. While the emergency environment required unusual measures, it resulted in a lack of container space for regular goods.

In a competitive shipping market, the three events mentioned above would have been resolved quickly through the entrance of new suppliers. In Puerto Rico, the impact of the Jones Act results in market conditions that are unfavorable for living and doing business in Puerto Rico.

When asked about the temporary Jones Act waiver after Hurricane Maria, the interviewees said they did not have enough time to benefit from it and that the 10-day

period did not constitute an appropriate time to evaluate whether more shipping companies would be interested in the Puerto Rico market. Industry experts suggested that in order to properly evaluate worldwide shippers' interest and possible cost reductions in the US-PR shipping costs, a waiver of at least a year should be granted. A longer waiver period would provide for properly allocating new assets to compete in the Puerto Rico-US trade.

One company already serving the Jacksonville-San Juan route that can allocate available resources is the Saltchuk Family of Companies, the holding company of Tote Maritime Puerto Rico and Tropical Shipping, among others. An interviewed CEO confirmed that Tropical Shipping, a sister company of Tote Maritime Puerto Rico, provides international shipping services for the Puerto Rico trade on a weekly basis, specifically the Halifax to San Juan route. Moreover, Tropical's Canada-Puerto Rico service is offered at a much lower price per nautical mile of transportation than what it costs to ship the same container from Jacksonville to San Juan with Tote Maritime Puerto Rico.

The main reason for that price differential: Jones Act restrictions. In addition to lower operational costs, Tropical Shipping has cost advantages when scheduling its routes. While Tote Maritime Puerto Rico has an exclusive route (non-stop) from Jacksonville to San Juan and back, Tropical Shipping, not subject to the Jones Act requirements, designs its shipping routes to maximize the trip, adding stops to deliver goods to other ports throughout the Caribbean. This practice is also known in the industry as port hopping.

In other words, the Saltchuk Family of Companies, the parent company of both Tropical Shipping and Tote Maritime Puerto Rico, is in great shape to serve the CONUS/PR market in the absence of the Jones Act. Moreover, Crowley also provides transportation services throughout the Caribbean.

VII. Findings

With the information gathered from the previous tasks, Advantage estimated the cost of the Jones Act for Puerto Rico in terms of food and beverage expense.

Advantage projected the experience of the food industry respondents to the whole economy of Puerto Rico and its implications in the average annual cost per family in Puerto Rico. This is an initial estimate since it would not be able to account for issues such as the land transportation cost of having to mostly ship from Jacksonville.

Advantage only used imports of foods, feeds and beverages. In FY 2018, this subgroup of imports, amounted \$4.615 billion. According to the survey, total maritime transportation costs are 12% of the value of the imports.

Another important survey result was that imports from US ports have a 151% Jones Act premium. This means that the JACs' freight rates were 2.5 times greater than those of their foreign counterparts.⁶³

Multiplying the Maritime Transport cost by the Jones Act Premium, we calculated a **7.2%** Jones Act Tax on the importation of food and beverages. In FY 2018, total PR food & beverage imports amounted \$4.615 billion. According to the Survey, 90% of containers came from the US. Since the Jones Act does not affect directly non-US imports, Advantage adjusted total PR food and beverage imports by 90% to estimate \$4.154 billion, which are the PR food and beverage imports impacted by the Jones Act. Applying this 7.2% tax to the \$4.154 billion value of imports, results in a cost of the Jones Act of **\$300 million** per year, or **\$245 per household** for maritime transportation of food and beverages.⁶⁴ The average household has 2.8 persons. If the household has more than 2.8 persons, the cost of the Jones Act to the household would increase accordingly.

⁶³ The Jones Act share of the freight rate was estimated at 60%. This share was obtained dividing 151% by (1+151%).

⁶⁴ In FY 2017, the US Census Bureau reported Puerto Rico had 1,222,606 households.

Cost of the Jones Act on Maritime Transportation of Food and Beverages (\$ Millions)*		
#	Item	\$ million
1	Imports Foods, feeds & Beverages FY 2018	\$4,615
2	MIDA's Imports from US @90% (2)=(1)*.90	\$4,154
3	Maritime Transport Cost	12%
4	Estimated Jones Act Share of the Freight Rate**	60%
5	Jones Act Food and Beverage Tax (5)=(3)*(4)	7.2%
6	Cost of the Jones Act (6)=(2)*(5)	\$300

*Advantage's estimate based on Survey results and public information.

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices (November 2018) and PR Institute of Statistics, Imports' statistics FY 2018.

** This share was obtained dividing 151% by (1+151%).

Cost of the Jones Act on Maritime Transportation of Food and Beverages per Household (\$)*		
#	Item	Value
1	Cost of the Jones Act PR (\$ million)	\$300
2	Number of Households in PR FY 2017	1,222,606
3	Cost per Household - Jones Act (\$ Dollars)	\$245

*Advantage's estimate based on Survey results and public information.

Source: Advantage Business Consulting, Inc. Survey of Maritime Transportation Practices (November 2018) and PR Institute of Statistics, Imports' statistics FY 2018.

However, the above figures are just the increase in shipping costs attributed to the Jones Act. There are other costs attributable to the Jones Act in addition to the shipping costs.

The estimated **\$300 million** a year Jones Act Tax to food and beverages imports into Puerto Rico does not include the issues of land transportation, cascade effect and local production.

a) Land transportation extra costs occur because the Jones Act Carriers (JACs) service Puerto Rico from a very limited number of ports and use Jacksonville as their principal port. Therefore, shippers have to move their merchandise by overland from as far as California to Jacksonville.

b) The estimate of the Jones Act Tax also does not include the “cascade effect” in the local distribution chain. Because the merchandise that arrives in Puerto Rico already includes this Jones Act Tax – making it more expensive – all the markups in the distribution chain are calculated including the Jones Act Tax.

c) Puerto Rico agricultural production becomes more expensive as the Jones Act adds to the cost of inputs required by the local farmers, from fertilizers to electricity.

For these reasons, Advantage estimates that the annual cost of the Jones Act for the economy of Puerto Rico could be 22% more than the previous calculation, or \$367 million a year, only on food and beverages.

Estimated Annual Jones Act's Cost for Puerto Rico on Food & Beverages (\$ million)	
Item	Cost
Cost of Maritime Transport	\$300
Issue of Land Transportation	N/A
Issue of Local Production	N/A
Issue of Cascade Effect	N/A
Approximate Cost	\$367

Source: Advantage estimates based on the Survey of Maritime Transportation Practices. November 2018.

In terms of the Jones Act Tax per household, the estimated \$245 per household could increase to \$300 per household. This is only for food and beverages and was calculated for a household of 2.8 people; if the household has more individuals, the Jones Act Tax for that household would increase accordingly.

Estimated Annual Jones Act's Cost per Household on Food & Beverages (\$ per household)	
Item	Cost
Cost per Household Maritime Transport	\$245
Issue of Land Transportation	N/A
Issue of Local Production	N/A
Issue of Cascade Effect	N/A
Approximate Cost per Household	\$300

Source: Advantage estimates based on the Survey of Maritime Transportation Practices. November 2018.