



UPDATE ON United States–South America Ocean Grain Freight Spreads (Summary)

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This paper is an update of the summary of: U.S.–South America Ocean Grain Freight Spreads, by Jay O’Neil, International Grains Program Institute (IGP), Kansas State University (KSU). The full paper is available at <http://hdl.handle.net/2097/18876>. For more information on this summary, contact the author at Delmy.Salin@usda.gov or 202-720-0833.

WHAT IS THE ISSUE?

The world export market for soybeans is highly competitive. Even though U.S. production costs are higher than those of South American soybeans, because U.S. total costs (including transportation costs, from point of production to the destination in Asia), are generally lower than for South American soybeans, U.S. soybeans are able to compete. However, developments in Brazil are lowering its transportation costs, making the country more competitive in the world market.

At the end of November 2019, the Brazilian government announced that the last 28 miles (43 km) of pavement along Brazilian highway BR-163 connecting Sorriso, North Mato Grosso, to Miritituba was completed. According to industry analysts, transportation costs will be reduced by about U.S. \$7/metric ton (mt) (reais (R\$)30/mt) when BR-163 is completed. In addition, Brazilian seasonal port backlogs declined significantly because of the added loading capacity in the Northern Arc ports, and increased vessel loading efficiencies in the Southern ports, which expedited exports. The added capacity in the Northern Arc ports helped relieve congestion in the busy Southern ports by shifting cargo away to the Northern Arc ports, especially to Barcarena and São Luís. The Port of Santos is still the largest Brazilian grain export gateway.

WHAT DID THE STUDY FIND?

This report found that during the 2019 peak harvest season, Brazilian ports and the U.S. Gulf loading delays and vessel backups were similar, averaging 3-10 days—narrowing the time spread between the regions. Relatively small changes, such as this one, in seaborne transportation costs, can make South America soybean exports more competitive than those of the United States and diverting trade from U.S. exports to Brazilian or Argentinean exports, or the reverse. Ocean freight spread is the cost difference between two vessel routes to the same destination, such as between the U.S. Gulf and the Pacific Northwest to Asia versus South America to Asia (China and Japan), or the U.S. Gulf to Europe and China versus South America to Europe and China.¹

¹ The U.S.–South American ocean freight spread competitiveness occurs in the Atlantic route (U.S. Gulf) to China and not in the U.S. Pacific Northwest (PNW) route to China because of the Panama Canal and the Canal transit costs limitations.

Table 1. Vessel costs from U.S. Gulf to Shanghai, China versus Argentina and Brazil to Shanghai, China, October 15, 2019 to November 15, 2019

Cargo mean quantity	U.S. Gulf			Argentina	Argentina	Brazil		
				Rosario	Bahia Blanca	Santos	São Luís/Itaqui	
	58,000 mt ¹	68,000 mt	68,000 mt	55,000 mt	60,000 mt	66,000 mt	65,000 mt	
	Panamax	Post-Panamax	Post-Panamax	No Top-Off ²	2 Port With Top-Off			
Route via	Panama Canal	Neo-Canal ³	Cape of Good Hope	Cape of Good Hope	Cape of Good Hope	Cape of Good Hope	Panama Canal	Cape of Good Hope
Nautical miles	10,013	10,013	14,973	11,541	11,610	11,056	11,087	11,708
Voyage days (at 12 knots)	35	35	52	40	40	38	38.5	40.5
Panama Canal wait time	2	4	0	0	0	0	2	0
Laytime both ends	15	15	15	20	26	20	20	20
Total voyage duration days	52	54	67	60	66	58	60.5	60.5
U.S. Gulf daily hire rate (\$18,000 x total voyage days)	\$936,000	\$972,000	\$1,206,000	-	-	-	-	-
Brazil and Argentina daily hire rate (\$16,500 x total voyage days)	-	-	-	\$990,000	\$1,089,000	\$957,000	\$998,250	\$998,250
Ballast Bonus ⁴	\$800,000	\$800,000	\$800,000	\$650,000	\$650,000	\$650,000	\$650,000	\$650,000
Singapore Bunkers ⁵ (\$12,500/day)	\$437,500	\$437,500	\$650,000	\$500,000	\$500,000	\$475,000	\$481,250	\$506,250
Port Fees	\$232,025	\$280,300	\$280,300	\$260,000	\$434,000	\$56,000	\$80,000	\$80,000
Panama Canal Fees (one way)	\$198,783	\$239,783	-	-	-	-	\$239,783	
Total vessel costs	\$2,604,308	\$2,729,583	\$2,936,300	\$2,400,000	\$2,673,000	\$2,138,000	\$2,449,283	\$2,234,500
Freight rate per mt:	\$44.90	\$40.14	\$43.18	\$43.64	\$44.55	\$32.39	\$37.68	\$34.38

Note: The above estimates assume that a vessel is simply waiting for a transit slot and not paying extra for a reserved schedule to transit through the Neo-Panama Canal locks.

¹mt=metric tons.

²No top-off: the port of Rosario channel draft is not deep enough to load full Panamax and Post-Panamax vessels. Sellers have to decide to load up to 45,000 mt of cargo at Rosario (No top-off); or 2 ports with top-off—i.e., to load 45,000-50,000 mt at Rosario and finish loading (top-off) an additional 10,000-15,000 mt at Bahia Blanca.

³Neo-Canal = new Panama Canal locks.

⁴Ballast Bonus is a special payment above the chartering price when a ship has to sail a long way with no cargo to reach the next loading port.

⁵The fuel cost estimates include the costs of the global Sulphur limit of 0.50% m/m (mass by mass) to comply with the International Maritime Organization (IMO) regulation of 0.50% m/m (mass by mass), called IMO 2020, effective January 1, 2020. Vessel fuel cost is an estimate for a laden Panamax vessel steaming at 12 knots and consuming 25 tons of intermediate fuel oil (IFO) per day.

Market conditions at any given time may change the estimated route voyage cost. The estimated vessel freight trade may be above or below the straight cost calculations shown in Table 1. Consequently, the market will trade at whatever price level it deems appropriate. Seasonal port backlogs affect the logistical flow of commodities and shipper costs, but in a commodity supply push market (markets where supply is abundant), these extra costs generally get passed back to the local producers rather than paid by the shipper or commodity buyer and, therefore, have a smaller effect on ocean freight rate spreads. This is true whether commodities are sold free on board (FOB) or cost and freight (CNF).²

The ocean freight rates for grain cargos from South America to Asia are often less expensive than from the U.S. Gulf because of dry-bulk vessel route patterns, lower cost port charges, Panama Canal tolls, and less burdensome navigation restrictions. South America shipments provide some natural competitive advantages for Brazilian and Argentinean grains and oilseeds by sailing around Cape of Good Hope and avoiding the Panama Canal when the need exists. South American shippers can load large vessels gaining economies of scale and avoiding Canal fees and delays. Brazilian ports also provide less expensive berthing (dockage) costs for vessels. However, recently, Panamax and Post-Panamax soybean vessels from the U.S. Gulf to China are also gaining economies of scale by going around the Cape of Good Hope, bypassing the Panama Canal to avoid fees, waiting times, and the uncertainty of getting a slot to transit the new expanded Locks.³ U.S. Gulf grain transits the Panama Canal mostly in Handymax, Supramax, and Ultramax vessels and some Panamax vessels with a cargo capacity of under 69,000 mt. Unlike container, auto, and liquefied natural gas (LNG) vessels, dry-bulk vessels are not allowed to preschedule their lock times in transiting the new Panama Canal locks. Grain vessels must wait for an opening if they wish to go through the new locks.

Currently, loading delays and vessel backups in South America resemble those in the United States. The cost of any resulting vessel demurrage, however, does significantly affect the value of the FOB cargo and the price received by South American producers.⁴ For example, “FOB Santos” shows that the Brazilian seller will pay for transporting the grain to the Port of Santos and the cost of loading the grain onto the ship, including inland haulage, customs clearance, origin documentation charges, and demurrage. Once all the grain is on board, the buyer pays for all costs beyond that point. There are no readily available public data identifying the ocean freight spreads between the United States and South America. This publication aims to fill that gap.

HOW WAS THE STUDY CONDUCTED?

This study is based on primary data from O’Neil Commodity Consulting. Secondary data sources are USDA-AMS Transportation Services Division, Bluewater Shipping Port statistics, Agri Port Services USA and Brazil, Clarksons Platou Singapore, Searates.com, Sea-Distancees.org, Advansea Brokerage and Consulting, and the Panama Canal Authority. The study does not include inland transportation costs in each competing region.

2 FOB Origin indicates that the sale is considered complete at the seller’s shipping dock, and thus, the buyer is responsible for freight costs/liability. CNF refers to a common type of shipping agreement where the seller pays for delivering the item to the port closest to the buyer. CNF shipping terms do not include the cost of cargo insurance.

3 Post-Panamax are vessels with a capacity of 85,000-100,000 dwt; Panamax vessels have a capacity of 75,000-78,000 dwt. New vessels can load more cargo on lower drafts. Deadweight carrying capacity (dwt) is the weight that a cargo ship can carry when immersed to the appropriate load line, expressed in tons, including total weight of cargo, fuel, fresh water, stores, and crew.

4 Demurrage costs are the charge levied when a shipment is not loaded or unloaded within the allowed time.

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