

# A Case Study Comparing the Container Shipping Industry in the US and Panama

*Tulio Sulbaran, Ph.D.<sup>1</sup>, Matt Gathof,<sup>2</sup>*

**Abstract** - The container shipping industry has been an integral part of the success of globalization. Shipping companies are forced to maximize value to remain competitive in global markets. Reduced import and export duties go a long way in minimizing the cost of container shipping. An excellent geographical location, the Panama Canal, tax-free processing zones, and a zero percent tax rate on profits made outside of the country make Panama a world leader in container shipping. In Panama, information gathered from experts at the Panama Ports Company and the Manzanillo International Terminal was used to formulate a thoroughly developed case study on the container shipping industry in Panama compared to that of the US. This case study has been presented in the form of a PowerPoint presentation, with references presented in APA format. This presentation should be of interest to members of shipping and logistics fields.

*Keywords:* Container Shipping, Panama Canal, Logistics,

## INTRODUCTION

Container shipping is the service of transporting goods by means of high-capacity, ocean-going ships that transit regular routes on fixed schedules (World Shipping Council). The universal sizes of shipping containers allow them to be transferred seamlessly between trains, trucks, and ships. Over the last several decades, container shipping has become an even more important aspect of trade, with an increase of outsourcing due to globalization. Today, approximately 90% of non-bulk cargo worldwide moves by containers stacked on transport ships (Ebeling). Maximizing efficiency in the shipping industry is necessary to keep profit margins high and to realize the full benefit of globalization.

The U.S. has the largest and most technologically powerful economy in the world with a per capita GDP of \$47,400. The U3 unemployment rate in the United States is hovering around 9%, and has been in that range since the start of 2009 (CIA World Factbook). Stagnant job growth and underemployment have been issues plaguing the U.S. economy since 2009. The capitalist economy in the U.S. is often considered the best place to foster a business successfully with little government intervention. The cost of labor in the U.S. is significantly higher than most countries, which has led to the outsourcing of over 1.7 million manufacturing jobs since 1998 (AFL-CIO). The U.S. economy is in the process of recovering from a large recession caused by the abuse of derivatives and an unsustainable housing bubble.

The U.S. is a net importer, with a trade deficit of \$38.3 billion in November of 2010. The U.S. exports of goods and services in November 2010 were \$159.6 billion and the imports were \$198.0 billion (U.S. Export Factsheet). In 2007, the U.S. exported 9,600,000 twenty-foot equivalent units, for 8.1% of the world market, second behind China. In 2007, the U.S. imported 19,600,000 twenty-foot equivalent units, for 16.3% of the world share (Trade Statistics). Large container shipping companies are well represented in the U.S. and Panama. Some examples include the Mediterranean Shipping Company, Maersk, and CMA CGM.

Panama has a dollar-based economy that rests primarily on a service sector that accounts for 75% of its gross domestic product. Services include operating the Panama Canal, logistics, banking, the Colon Free Zone, insurance, container ports, and tourism. Panama is in the process of expanding the Panama Canal and the project should be complete by 2014 at a cost of \$5.3 billion, which is 25% of their GDP. This expansion project is facilitating

---

<sup>1</sup> Professor – School of Construction at the University of Southern Mississippi, Box 5138, Hattiesburg, MS, 39406. E-mail: Tulio.Sulbaran@usm.edu.

<sup>2</sup> Student – School of Construction at the University of Southern Mississippi, Box 5138, Hattiesburg, MS, 39406. E-mail: Matt.Gathof@usm.edu.

economic growth since it will double the canal's capacity and accommodate ships that are currently too large to use the canal (CIA World Factbook). The Panamanian maritime sector represents 20% of GDP and represents the fastest growing sector of the national economy (Panama Shipping). Panama is the largest ship registry in the world, with more than 8,893 ships flying the Panamanian flag. A large number of these ships are flying flags of convenience, a ship is said to be flying a flag of convenience if it is registered in a foreign country for purposes of reducing operating costs or avoiding government regulations (Panama Guide). The Colon Free Zone is the world's second largest duty free trade zone, and the main commercial distribution center for the northern hemisphere. The Colon Free Zone handles \$16 billion in imports and re-exports annually (About the Colon Free Zone). Strong economic performance does not equate to shared prosperity throughout the population. Panama has the second highest income disparity in Latin America, 30% of the population lives in poverty.



Figure 1 -- The Mol Vision Container ship in the Panama Canal

Panama is a net importer, with a trade deficit of \$3.53 billion in 2010. Panama's exports of goods and services in 2010 were \$12.52 billion and imports were \$16.05 billion. In 2008, the Panamanian port system throughput was 3,935,000 TEUs, which are container units 20 feet in length (About the Colon Free Zone). Figure 1 shows the size of the Mol Vision Container ship while traveling through the Panama Canal. The container segment is the largest and fastest growing segment of ships traveling through the Panama Canal, providing 33% of toll revenues in 2003 (Container Segment Analysis). The Panamanian government receives twelve dollars for each container imported and exported and six dollars for trans shipments from ships in any ports in Panama (Clement). Figure 2 depicts the cargo ship Atlantic Laurel leaving the Miraflores Locks in the Panama Canal.



Figure 2 – Ship Passing through the Panama Canal

The focus of this report is: A Case Study Comparing the Container Shipping Industry in the US and Panama. More specifically, this report compares the volume of container shipping that goes through the Port of Gulfport and the Manzanillo International Terminal. The objective and focus of this case study are well defined and obtainable. There is an abundant amount of information on this topic online, but exact figures are not easily accessible. Questions were crafted to gather the data needed to produce measurable results.

### INFORMATION/DATA COLLECTION APPROACH

Information and data for this case study has been collected in two parts, Internet research and interviews with experts in Panama. The following sections will describe the methods used in collecting the data in each part.

Table 1 lists the databases and websites used and the information found while Table 2 shows the keywords and phrases used for the search.

Table 1 -- Lists of databases and information found

Database Name	URL	Information
Google Scholar	<a href="http://scholar.google.com">http://scholar.google.com</a>	Scholarly articles on container shipping
Google	<a href="http://www.google.com">http://www.google.com</a>	Wide variety of container shipping information
World Databank	<a href="http://databank.worldbank.org">http://databank.worldbank.org</a>	U.S. and Panama economy information
CIA Factbook	<a href="https://www.cia.gov">https://www.cia.gov</a>	U.S. and Panama economy information
Bing	<a href="http://www.bing.com">http://www.bing.com</a>	Wide variety of container shipping information
Yahoo	<a href="http://www.yahoo.com">http://www.yahoo.com</a>	Wide variety of container shipping information
Wikipedia	<a href="http://www.wikipedia.org">http://www.wikipedia.org</a>	Basic Container Shipping Data
U.S. Census Bureau	<a href="http://www.census.gov/">http://www.census.gov/</a>	U.S. economy information

Table 2 -- Keywords and phrases used for the search:

Keywords and Phrases Used in the Search	
Container shipping US	Chiquita banana boats
Container Shipping in US	Port of Gulfport
Shipping container	Container shipping statistics US
Container shipping Panama	Container shipping statistics Panama
Panama container shipping	Panama economy
Container shipping	Colon Free Zone
Panama CIA World Factbook	Container segment analysis
U.S. CIA World Factbook	US exports

Google was the primary search engine used for the general research, while Bing and Yahoo were used for some information not easily found with Google. The CIA World Factbook and the World Databank were used to find information about the economies of the U.S. and Panama, along with demographic information on each country. Google Scholar offered several academic papers about Panama's container shipping industry.

Interview questions were developed for experts at the Panama Ports Company and the Manzanillo International Terminal (shown in Figure 5) to get a feel for container shipping statistics in Panama. Experts were asked general information about the numbers of containers imported and exported from Panama ports annually. Executives were additionally asked if they felt Panama's tax exemptions brought more container shipping to the ports in Panama.

Experts were also asked the percentage of ships sailing to Panama that utilize the canal. This information was used to compare the container shipping industry in Panama to the container shipping industry in the U.S.



Figure 3 -- Lorena Gonzales and Dr. Sulbaran at the Panama Ports Company

The interviews conducted in Panama were used to conclude the data collection process. The main goal of these interviews was to gain insight on container shipping in Panama from experts at the Panama Ports Company and the Manzanillo International Terminal. The topical area explored was legal. Laws including tax exemptions in the U.S. and Panama were discussed and how they affect container shipping.

The questions asked during the interview at MIT and the Panama Ports Company were developed to obtain data related to the volume of containers shipped both in and out of Panama ports on an annual basis, along with how tax exemptions in Panama affect imports and exports. The following list includes interview questions asked:

Table 3 -- MIT and Panama Ports Company Interview Questions

<ul style="list-style-type: none"> <li>• <b>What is the total number of containers shipped in to Panama ports annually?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What is the total number of containers shipped out of Panama ports annually?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What percentage of ships that sail to Panama utilize the Panama Canal?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What percentage of goods are imported and re-exported to take advantage of the tax exemption?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What percentage of goods exported from Panama are shipped to the United States?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What key differences do you see when comparing container shipping in Panama to the U.S?</b></li> </ul>
<ul style="list-style-type: none"> <li>• <b>What is the number of ships flying Panamanian flags?</b></li> </ul>

At the Panama Ports Company, Lorena Gonzalez who was the customer service coordinator was interviewed. At the Manzanillo International Terminal, Enrique Clement who was the customer service manager was interviewed. Each of these experts were able to provide insight on container shipping statistics from their individual ports and how large of a share of total Panamanian port traffic involved container shipping.



Figure 4 -- USM students at the MIT meeting with Enrique Clement

### Case Study

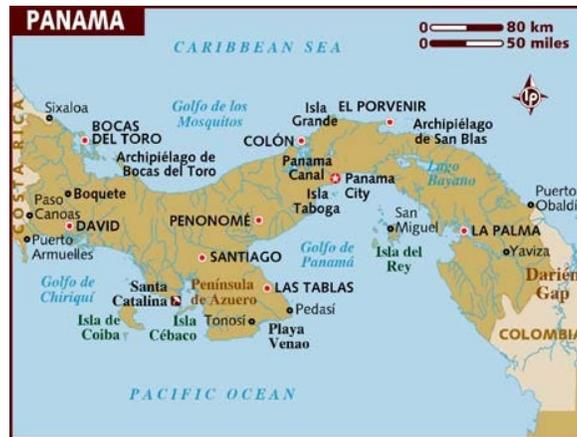


Figure 5 -- The Manzanillo International Terminal is located near the Atlantic opening of the Panama Canal immediately adjacent to the city of Colon.

MIT started operations on April 16, 1995 at a location near the Atlantic opening of the Panama Canal immediately adjacent to the Colon Free Trade Zone. MIT offers efficient and reliable port services to shipping lines transiting the Panama Canal or serving the South America and Caribbean Region. MIT has a total area of approximately 128 acres and offers 4,068 feet of contiguous container birth and 6,364 feet of total birthing space. MIT has a total storage capacity of 48,000 twenty-foot equivalent units. MIT provides customers with secure, flexible, and efficient services featuring fully automated vessel and gate systems, world-class productivity, container maintenance & repair, around the clock security and on-site customer office space (MIT General Information).

MIT has direct access into the Colon Free Zone and highway access to the cities in the Republic of Panama and other Central American countries. MIT averages 120,000 twenty-foot equivalent units of throughput per month or around 1,500,000 TEUs per year. MIT is equipped with an intermodal rail ramp leading to the transisthmian railroad across Panama. Post Panamax vessels rely on this railroad also referred to as the dry canal to transport containers to the Pacific side of Panama since they are too large to travel through the Panama Canal (MIT General Information).



Figure 6 -- Port of Gulfport, Mississippi Gulf Coast

The Port of Gulfport, as shown in Figure 6, is a bulk and container seaport that covers 204 acres and has 6,000 feet of total birthing space. The birthing space is composed of ten individual births ranging from 525 to 750 feet. The Port of Gulfport has gained a solid reputation as the second largest importer of green fruit in the United States and the 3rd busiest container port on the U.S. Gulf of Mexico, located on the central Mississippi Coast. The port's annual throughput is approximately 200,000 TEUs. The port's channel is approximately 250 feet wide with a turning basin approximately 1,320 feet wide, both with a depth of 32 feet (Shipmspa).

The centralized location of the Port of Gulfport is an excellent asset that makes it unique in the gulf region. The Port of Gulfport is just sixteen miles from shipping lanes and five miles from the intercostal waterway. The port has excellent rail access provided by Kansas City Southern and CSX that allows efficient container transit from the port to transportation hubs across the country (Shipmspa). Foreign Trade Zone #92 allows cargo to be stored indefinitely in the Port of Gulfport and not taxed until it reaches U.S. Customs territory (MS Coast FTZ). Banana shipping makes up 58% of the imports to the Port of Gulfport and provides regular scheduled service to Guatemala, El Salvatore, Costa Rica, and Nicaragua.

## RESULTS AND RESULTS IMPACT

The similarities between the Port of Gulfport and MIT compared were the total area, total birthing space, tax incentive zones, and rail access. The differences between the Port of Gulfport and MIT compared were the annual container throughput, main markets, transshipment percentages, and transoceanic container shipping.

Table 4 -- Similarities between the Port of Gulfport and MIT

Criteria	Port of Gulfport	MIT
Total Area	204 acres	128 acres
Total Birthing Space	6,000 feet	6,364 feet
Tax Incentives	Foreign Trade Zone #92	Colon Free Trade Zone
Rail Access	CSX and Kansas City Southern	Panama Canal Railway

There are several similarities between the Port of Gulfport and the Manzanillo International Terminal. The Port of Gulfport is slightly larger at 204 acres versus MIT that has an area of 520,000 square meters, which converts to 128.49 acres as seen in Figure 7. The Port of Gulfport has a total birthing space of 6,000 feet composed of ten individual births ranging from 525 to 750 feet each as shown in Figure 8. MIT has a total birthing space of 6,364 feet with 4,068 feet of contiguous container birth, 1,312 feet of container birth, and 984 feet of "Mediterranean-style" ro-ro birth (MIT General Information). The Port of Gulfport's tax incentive zone is Foreign Trade Zone #92

which allows cargo to be stored indefinitely in the Port of Gulfport and not taxed until it reaches U.S. Customs territory. MIT's tax incentive zone is the Colon Free Trade Zone that allows no sales or production tax; tax exemption from income derived abroad, and no tax or duty on imports to or re-exports from the Free Zone to foreign countries. The Port of Gulfport has access to Kansas City Southern and CSX rail lines that allow efficient container transit from the port to transportation hubs across the country. MIT is equipped with an intermodal rail ramp leading to the transisthmian railroad run by the Panama Canal Railway Company that runs across Panama.

These similarities are important because they show the Port of Gulfport has the potential to handle a comparable amount of container traffic as MIT if there's sufficient demand.

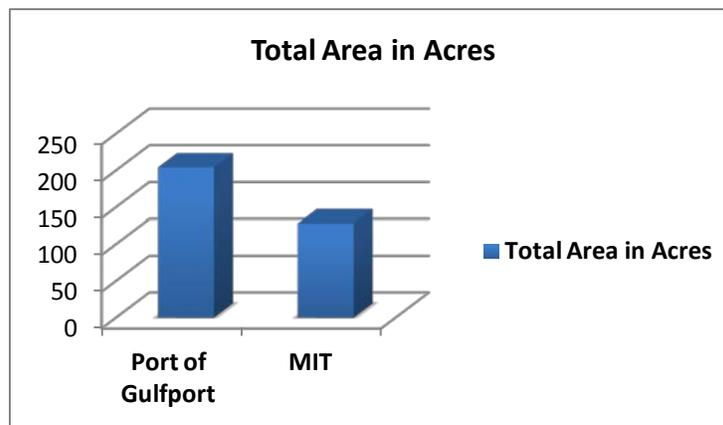


Figure 7 -- Total area for the Port of Gulfport versus MIT.

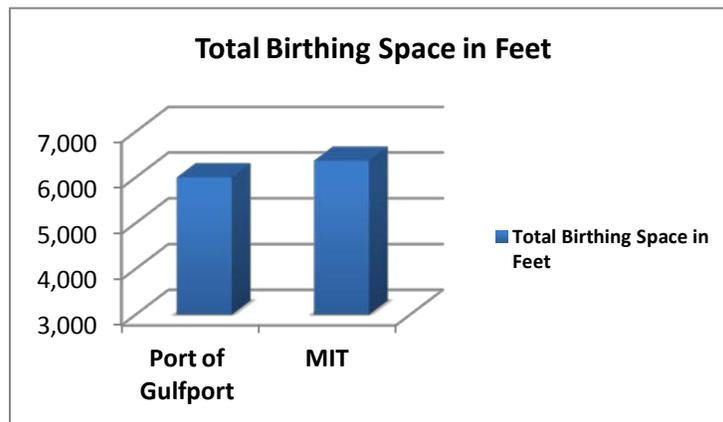


Figure 8 -- shows the total birthing space for the Port of Gulfport at 6,000 feet versus 6,364 for MIT.

Table 5 -- Differences between the Port of Gulfport and MIT

Criteria	Port of Gulfport	MIT
Annual Container Throughput	200,000 TEUs	1,500,000 TEUs
Main Markets	Central America	South America and the Caribbean
Transshipment Percentage	Minimal	85%
Transoceanic Shipping	No	Yes

There are a few differences between the Port of Gulfport and MIT as shown in Table 5, but they're more due to operations than physical characteristics and potential. The annual container throughput for the Port of Gulfport is 200,000 twenty-foot equivalent units compared to MIT's annual throughput of 1,500,000 TEUs. This shows that MIT, which has a similar physical size to the Port of Gulfport, is doing over seven times the annual container

shipping volume as Gulfport. The Port of Gulfport's main markets are the fruit producing regions in Central America including: Guatemala, El Salvatore, Costa Rica, and Nicaragua. MIT's main markets are Caribbean and South America, including Brazil and Venezuela. The Port of Gulfport has no real transoceanic container shipping at the present time, with most of the routes heading to and from Central America. MIT has a large number of transatlantic ships dock to transfer containers across Panama via the transisthmian railway.

These differences are important because they highlight a potential for increased shipping volume for the Port of Gulfport if a trading network is developed with MIT. Sharing access to the Gulf of Mexico and the Caribbean would allow MIT better access to North America and the Port of Gulfport better access to the Caribbean and South America.

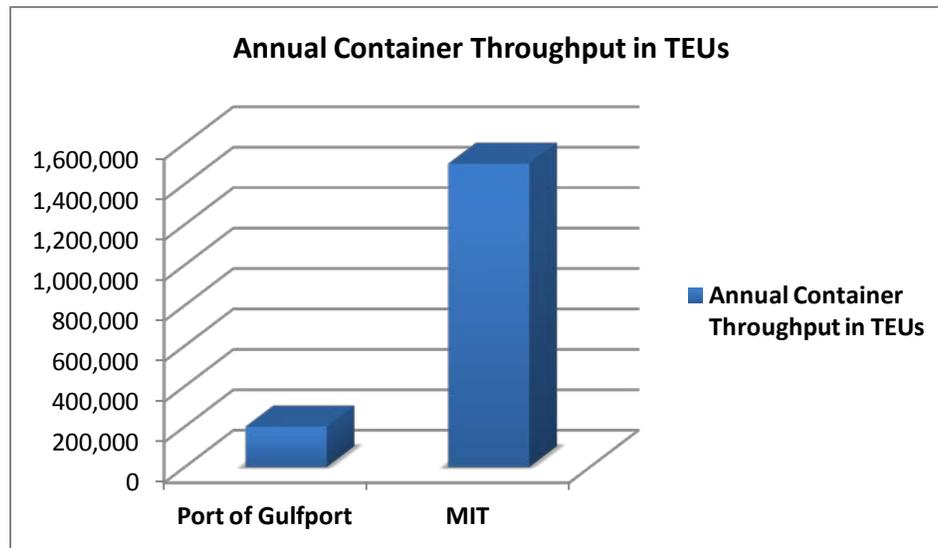


Figure 9 -- shows the difference in annual container throughput at Port of Gulfport versus MIT

### SUMMARY

The container shipping industry has been an integral part of the success of globalization. Continuing to refine and fine-tune the industry is key to keeping costs low on imported goods and not interrupting the supply chain. While the U.S. currently has the most powerful economy in the world, many nations are becoming more wealthy and able to purchase consumer goods, which are shipped in containers. Panama has become the transportation and logistics hub of the Americas with the Panama Canal and several large ports. The Port of Gulfport is currently underutilized and would greatly benefit with a trading relationship with MIT and Panama. This would give North America easier access to goods from South America and the Caribbean while allowing North America to efficiently export goods to South America and the Caribbean through Gulfport.

### REFERENCES

World Shipping Council. Retrieved January 8, 2012, from <http://www.worldshipping.org/about-the-industry>

Ebeling, C. E. (Winter 2009). "Evolution of a Box". *Invention and Technology* 23 (4): 8–9

U.S. Economy – Overview. Retrieved February 13, 2012 from <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html>

Exporting America. Retrieved May 31st, 2012 from [http://www.aflcio.org/issues/jobseconomy/exportingamerica/outsourcing\\_problems.cfm](http://www.aflcio.org/issues/jobseconomy/exportingamerica/outsourcing_problems.cfm)

U.S. Export Factsheet. Retrieved from  
<http://aapa.files.cmsplus.com/US%20export%2Dfactsheet%2Djanuary2011%2D01%2D13%2D2011.pdf>

Trade Statistics. Retrieved April 15th, 2012 from  
<http://www.worldshipping.org/about-the-industry/global-trade/trade-statistics#2>

Panama Economy – Overview. Retrieved March 21st, 2012 from  
<https://www.cia.gov/library/publications/the-world-factbook/geos/pm.html>

Panama Shipping. Retrieved April 10th, 2012 from  
[http://www.businesspanama.com/investing/opportunities/ports\\_maritime.php](http://www.businesspanama.com/investing/opportunities/ports_maritime.php)

Panama Guide – Retrieved May 1st, 2012 from <http://www.panama-guide.com/index>

About the Colon Free Zone – Retrieved April 17st, 2012 from <http://colonfreezone.com/about-the-cfz/>

Container Segment Analysis – Retrieved May 5th, 2012 from <http://www.pancanal.com/esp/plan/estudios/0221-01.pdf>

Clement, Enrique (2011, May 25). MIT Customer Service Manager. Interview.

Panama Canal Pictures – Retrieved May 5th, 2012 from <http://www.canalmuseum.com/canalphotos/ships-01-photos.html>

MIT General Information – Retrieved May 5th, 2012 from  
<http://www2.mitpan.com/en/TheCompany/GeneralInformation/>

Business Dictionary – Retrieved April 30th, 2012 from  
<http://www.businessdictionary.com/definition/cost-control.html>

Shipmspa – Retrieved February 12th, 2012 from <http://www.shipmspa.com/>

MS Coast FTZ – Retrieved January 20th, 2012 from <http://www.mscoastftz.org/advantages.php>