

Cargo Security Examination and it's effect on National Security in the United State

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Abstract

Governments are very concerned with cargo shipment, as it may bring security risks to a country. Many governments have enacted rules and regulations, administered by a custom agency, for the handling of cargo to minimize risks of terrorism and other crime. Dangerous packages can be secured and monitored for the protection of personnel and cargo alike. Thus, this research will investigate the cargo security examination and its effect on National Security in the United State of America. The study adopted ex-post facto research design. The dataset was obtained from the maritime administration, the United State department of Transportation, indicating that a secondary dataset was used for the analysis. The study used a time series approach to determine the variability of the dataset. The variability of the Vessel inventory reports on the different shipping types and the waterborne containers in the US were reported, reviewed and analysed respectively. The US always maintains a fleet of private commercial oceangoing carriers that can complete the international shipping market using cargo preference and international agreements. Based on this, the study suggested that the agency should work on how to increase the use of US extensive navigable network.

Keywords: Cargo Security, Maritime Administration, Report, Shipping market, Vessel Inventory.

1.0 INTRODUCTION

Governments are very concerned with cargo shipment, as it may bring security risks to a country. Many governments have enacted rules and regulations, administered by a customs agency, for the handling of cargo to minimize risks of terrorism and other crime. Governments are mainly concerned with cargo entering through a country's borders. Since the implementation of International Ship and Port Facility Security (ISPS) Code was put into effect in 2004, ports have improved security fences, X-ray detection techniques, closely watched dock transports, and tighter crew control. Ship's Officers are now more aware of the need to be security conscious. For the ship to be safe, vigilance is necessary (House, 2005).

The Chief Officer considers the stability requirements of the ship at every point of the journey. The function of the ship's crew is to safeguard the interests of the ship owner and ensure the delivery of all cargoes in good condition and in a safe manner. Dangerous packages can be secured and monitored for the protection of personnel and cargo alike. For a ship to be safe, cargo information is crucial, and ports are implementing the Code quickly. With the help of outside resources like VTS programs, communication networks, and hydrographic departments, maritime authorities are working within the ISM System to ensure the safe operation of ships on the high seas. The duty of the ship's officers is to maintain a safe working environment (House, 2005; Maria, 2019).

The United States has been a pioneer in cargo security. They consider cargo to be a national security risk. The security of this volume of cargo has received more attention since the September 11 terrorist attacks on the more than 6 million cargo containers that enter American ports each year (Murray, 2007). The Container Security Initiative (CSI) is the most recent US government response to this threat. A program called CSI aims to improve security for international containerized cargo arriving in the United States (CSI, 2006) This issue is a concern for Europe as well, where several projects are being funded by the EU. According to a report updated in 2022 by US Customs and Border Protection, more than 11 million maritime containers arrive at seaports annually. Another 11 million people cross land borders by truck, and 2.7 million people cross by rail. Through initiatives like the Container Security Initiative and the Customs Trade Partnership Against Terrorism, US Customs and Border Protection is in charge of protecting the American people and ensuring that the correct funds are collected.

In the past, the U.S. Government has physically inspected any cargo arriving from a foreign country to make sure it complies with American laws and regulations. After September 11, 2001, the Department of Homeland Security created a new organization called Customs and Border Protection (CBP) that combined the U.S. Customs Service, Agriculture Inspection, Immigration and Naturalization Service, and Border Patrol. For the purpose of defending the nation against terrorists and WMDs, CBP now occupies a key position in Homeland Security (US customs and Borders Protection in their report on Cargo Examination modified in 2017). As part of its antiterrorism mission, CBP physically inspects cargo as it enters American ports, uses intelligence to identify high-risk shipments, and works in 20 foreign ports to ensure the security of cargo headed to the United States.

Meanwhile, CBP enforces more than 400 laws on behalf of more than 40 other U.S. Government agencies under the Trade Act of 2002. The American people are protected from dangerous and illegal goods by many of these import limitations and specifications. CBP has launched a number of initiatives to improve its capacity to inspect cargo effectively without impeding trade, which is vital to the U.S. economy. One of these initiatives is the use of non-intrusive inspection technology (CBP, 2017). These cargo inspections are conducted by U.S. Customs and Border Protection in order to safeguard our nation. Along with its own rules, CBP also upholds more than 400 other laws on behalf of more than 40 other U.S. government agencies, including the USDA, FDA, Fish & Wildlife, to name a few (CBP, 2017).

The protection of the country and its citizens from invasion and other external threats is known as national security. The protection of the home against terrorist and other attacks has grown to be a top national security concern since the attacks of September 11, 2001. Priorities for cargo security include the movement of general cargo in international trade, the transportation of hazardous materials, air cargo services, domestic general commodity movements, and exports. In order to lessen the vulnerability of the Cargo security network and related infrastructure, information regarding container ownership and location as they travel from point of origin to point of destination is essential. A chain of custody can be established using smart cards with biometric identifiers and cargo data linked to an electronic manifest (White House, National Security Strategy, 2010).

Supply chain software, electronic cargo seals, and wide-area communications are examples of technologies that can be used to improve security and efficiency. These technologies can be helpful in tracking shipments of dangerous goods and freight that is transported across international borders. Responses to terrorism and other incidents, such as those involving the transport of hazardous materials, may also have an impact on the cargo network. A system for tracking containers and locating cargo custodians is being developed to lessen vulnerability. Global supply chains are now effective as a result of the close coupling between cargo and logistics systems. Enhanced cargo security measures might also present chances to boost effectiveness and output (federal Highway Administration, 2020).

It is obvious that terrorism could disrupt the vast and easily accessible U.S. freight transportation network. To increase the system's security, numerous efforts are required. While some security requirements are immediate, others are longer-term objectives. To balance security requirements with cargo productivity, then, is the challenge facing transportation decision-makers. Both objectives can coexist. Security measures have the potential to increase productivity, enhance customer satisfaction, and lower theft-related losses if properly planned and implemented. Thus, this research will investigate the cargo security examination and its effect on National Security in the United State of America.

2.0 Literature Review

2.1 Conceptual Review

Cargo Security: This is the preventive action taken to safeguard cargo from any threats posed by terrorist attacks and other illegal activities. In addition to securing cargo against theft, cargo security measures guard against foreign objects like bombs or drugs. A crucial component of the cargo supply chain is security. The industry as a whole, organizations, and regulators are collaborating to further secure the cargo supply chain while preserving commerce.

Cargo Security and Examinations: A customs examiner physically inspects the items during this process. By submitting the appropriate application to the Assistant Collector of Customs, physical inspection of the goods may be arranged at the exporter's warehouse or factory. In his presence, he ties up the packages. The main goal of inspecting cargo at the docks is to confirm that the items listed on the Shipping Bill are the ones that were packed and stored for shipment. A "Let Export Order" will be made on the back of the shipping bill to authorize the export once all formalities have been completed, the customs officer has determined that the export does not violate any

legal provisions, and all duties and other dues have been paid. The Electronic Data Interchange (EDI) System is used to process customs clearance where it is computerized.

National Security: The security and defense of a sovereign state, including its people, economy, and institutions, is referred to as national security or national defense and is viewed as a responsibility of the government. National security, which was initially intended to be defense against military attack, is now widely understood to encompass non-military aspects as well, such as security from terrorism, reducing crime, economic security, energy security, environmental security, food security, and cyber security. Similar to how other nation states may act, violent non-state actors such as drug cartels, multinational corporations, and even the effects of natural disasters may pose a threat to national security.

2.2 Empirical Review

Few related researches have been carried out on cargo security and its examination. An instance is the study of Ekwall and Lantz, (2017), who studied cargo theft and security and also studied on product and location. In their study, they explained four products in different locations along with a transport chain through a theoretical approach. The research method is deductive as the analysis is based on secondary data results are analyzed based on supply chain risk management and criminology theories. The study shows significant interaction effects on type of product and transport chain in determining the correct level of security. Ekwall and Lantz, (2020) in his article explained the moderating role of transport chain location in cargo theft risk. The study also used system-theoretical approach using a deductive research method. The analysis of the work was based on secondary and result from different questionnaires. The findings showed that product type is significantly affected because the general cargo theft risk is higher. Other researchers who has studied related research to Ekwall and Lantz, (2020) include Boone, Skipper, Murfield, and Murfield, (2016); Ekwall and Lantz (2018); Ekwall and Lantz, (2020), and many others. Burns, (2019) worked on cargo security at the US-Mexico border. The study used primary sourced data through administration of structured questionnaire. The study revealed significant connection among delays and security at the U.S border. Young and Gordon (2020) explained the assessing factors for resiliency and security using the internodal maritime supply chain. The study was based on interview from a wide range of supply chain participants including the regulatory agencies, transportation providers, importers, exporters, and trade intermediaries. The study was based on theory-building research and however found suggested the basis for a decomposition of the global maritime supply chain. Other researchers who has considered supply chain security include Caldwell, (2012); Leonard (2010), Voort, Willis, Ortiz, and Martonosi (2007), etc.

Chlomoudius, Kostagiolas, and Lampridis (2011) used an evidence from main Greek ports to explain the quality and safety system for the port industry. This paper dual objectives are to a. investigate current issues for quality and safety/security systems integration within the port industry and b. empirically evaluate the uptake of quality and safety international standards in the main Greek ports. The objectives were achieved using semi-structured interviews from top management and the study found that the majority of the Greek ports prioritize safety and environmental issues. Also, there is a clear increase in interest in ISO 9001 certification.

Onwuegbuchunam, Aponjolosun, Igboanusi, and Okeke, (2021) on the impact of maritime security regime on Nigeria Seaports. The study was based on primary data which adopt the use of structured Likert scale and the result was argued with the result from secondary data. The study used the Partial Least Squares model to find a significant relationship between port security regimes (represented by port security measures), port security incidents, and port performance in order to test the hypotheses guiding the study. The findings demonstrated that implementing suitable security measures can lead to a significant decrease in port security incidents and an improvement in port efficiency. Anoziea, Umahi, Onuoha, Nwafor, and Alozie (2019) used Nigeria maritime sector and economy to explain the integrated maritime security. Finman, (2007) explained the maritime security on the Horn of Africa. Msheliza, Uzamere, Ugochukwu, Adegboye, and Adama, (2023) used Nigeria experience to explain the Gulf of Guinea and maritime security challenges.

The research reviewed above have empirically shown that few related studies have considered this research topic “Cargo security examination and its effect on national security in the United State. Also, most related studies have used theoretical approach to explain the concept of cargo security while this research will use an empirical approach to studied the effect. Hence, a need to proceed with the research.

3.0 Material and Method

Ex-post research design was adopted to explain cargo security examination and its effect on the National security in the US. A time frame of used in the analysis differ based on the available data. The dataset was obtained from the

maritime administration, the United State department of Transportation, indicating that a secondary dataset was used for the analysis. The dataset obtained is divided into two different sections.

The first dataset is on the vessel inventory reports which explained the different types of shipping used at different shipping locations in the USA. These lists include self-propelled oceangoing merchant (commercially trading) ships flying the U.S. flag that are 1,000 gross register tons or more and engaged in both domestic and foreign trade. There are about one hundred and seventy-eight vessel name with different ship type such as general cargo, containership, tanker, Ro-Ro, dry-bulk, and vehicles carrier used between 1963 to 2018. Though, information on the vessel name and the different ship type varies and differs in year. This leads to reasons why the graphical representation of the gross tons and the deadweight tons are shown different from their ship type. Proceeding with the data collection, information on six different types of shipping are provided but due to availability of dataset on it, only three shipping categories were selected and used for the analysis. Hence, the report explains the graphical representation of tanker, cargo and container shipping to the USA.

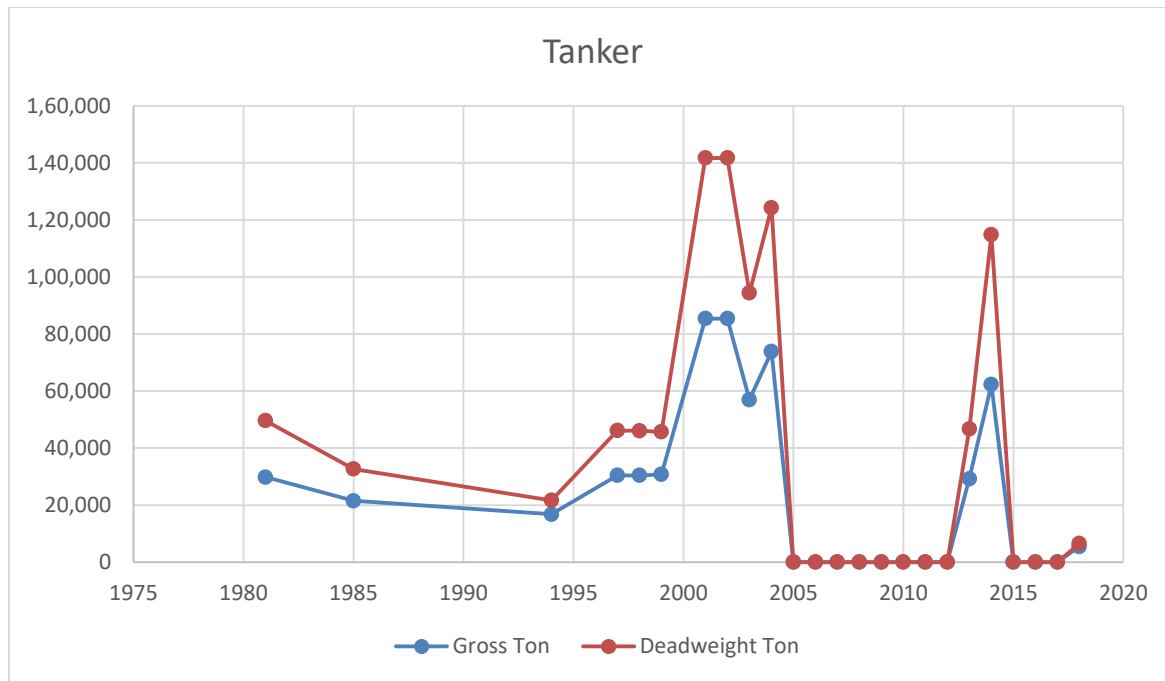
The second dataset obtained discussed mainly on the import of US waterborne foreign container by the US custom ports. Information used for the analysis revealed that there are sixty-three (63) US custom ports which varies from one coast to another. The dataset on the US custom ports was collected from 2000 to 2017. On the 63 custom ports, an average on the amount of waterborne metrics was calculated and use to show a pictorial representation of the container trade by US customs ports (See Figure 4)

However, to achieve the objective of the study, descriptive statistics of the analysis was carried out and adopted for the analysis. The study will use a time series approach to determine the variability of the dataset. Hence, the variability of the Vessel inventory reports on the different shipping types and the waterborne containers in the US were reported, reviewed and analysed respectively.

4.0 Results and Discussion

The United States maritime administration, popularly known as MARAD usually keeps tabs on data on the US international trade, the number of large, self-propelled, ocean-going ships flying the American flag and the vessel activity at U.S. ports. All these information's are used by the MARAD to determine and report on how well its programs are performing and how well the agency's mission demands are being fulfilled.

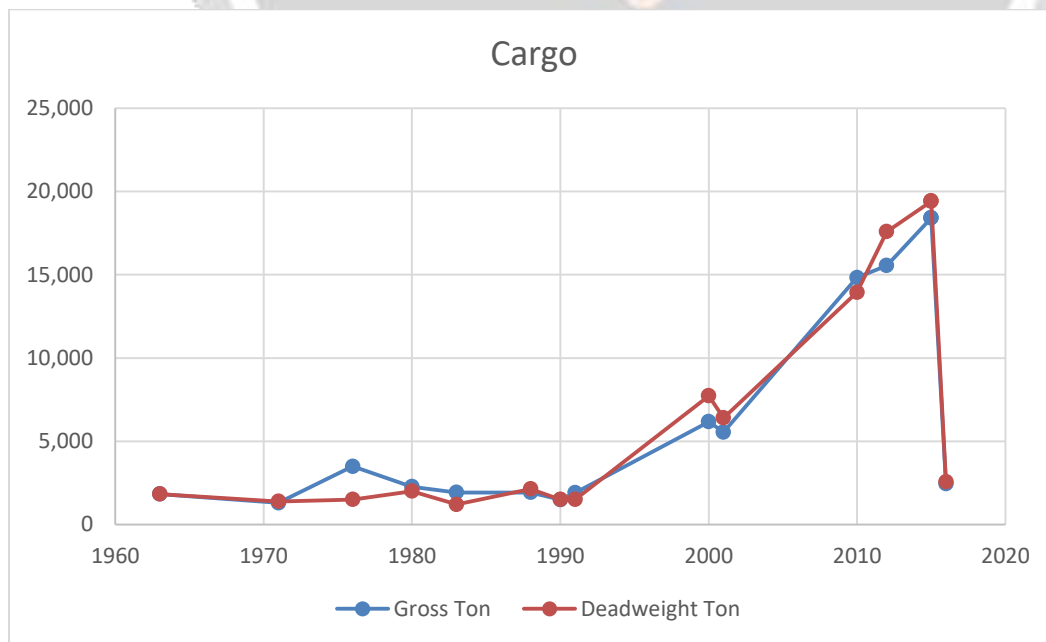
The result explains the self-propelled oceangoing merchant, that is the commercial trading ships flying in the U.S. flag that are 1,000 gross register tons or more. These shipping types (containers, tankers, and cargo) are engaged in both the domestic and foreign trade. Over the years now, there has been an inconsistency in the commercial trade of tankers which engaged in carrying the domestic and foreign trade. The dataset collected on tanker shipping type was between 1981 to 2018, even though some years were not reported in the analysis. But reports have shown that fluctuation occur in the gross ton and deadweight ton of the ship. The deadweight ton (deadweight tonnage) and the gross ton (gross tonnage) differs because the deadweight ton is the number of tons of 2,240 pounds that a vessel can transport of cargo, stores and bunker fuel while the gross ton is only applicable to vessels and not to cargo as shown in Figure 1, 2, and 3 of this paper. In Figure 1, for instance, every year, the deadweight of tankers is higher than the gross ton of the tanker. In the analysis, it was displayed that between 1981 to 2004, deadweight ton of tankers of the US flag privately owned merchant seems higher than the gross ton of tankers. Though, in 2005 to 2012, the average tons of the deadweight and gross loaded by tankers from different vessels name seem constant while deadweight ton shows an increment of 17,454 in 2013 and 52,496 in 2014 respectively. The three consecutive years that followed 2014 show no difference between the amount of tons carried by deadweight and the gross of the tanker shipping before a little increment occur in 2018 with about 1,088 tons.



Source: Researcher’s Computation, 2023

Figure 1: Tanker Shipping

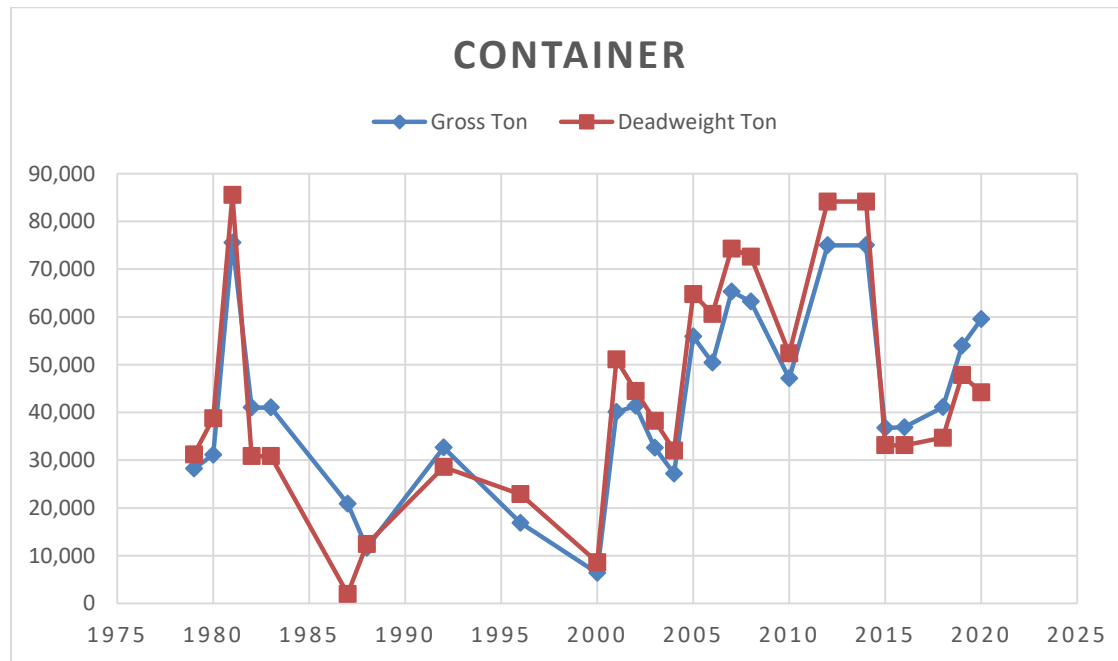
Data was obtained from 1963 to 2016, even though a lot of years were not reported in the data. The result has displayed that there is a light different between the weight of the deadweight tons and gross tons (See Figure 2). In 1963 and 1971, a little difference occurs in the tons carried by the gross and deadweight of the cargo while in 1976, 1980 and 1983, the tons carried by the gross of the cargo were higher when compared with the tons of the deadweight. After these years, variation occur between the tons carried by the deadweight and gross of cargo, resulting to a increase and decrease of the ton carried by the cargo. In 2016, both the gross and deadweight decline from 18, 410 to 2, 451 and 19,436 to 2,565 tons respectively (See Figure 2).



Source: Researcher’s Computation, 2023

Figure 2: Cargo Shipping

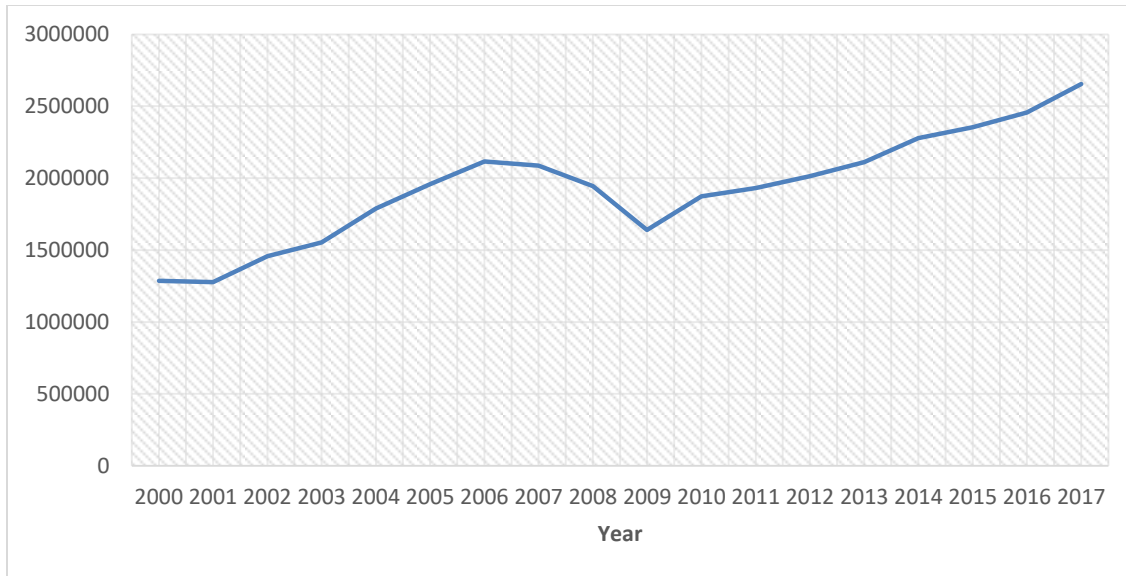
The tons of deadweight and gross carried by the container shipping show a slight significant difference. The tons being carried on the deadweight of the container seems higher than that of gross of the container for some years. The two types of container shipping have shown a variation in tons. The dataset used for this section is between 1979 to 2020. In 1979 – 1981, the tons of deadweight is higher when compared with gross tons while in 1982 – 1983, gross tons is higher with 10,211 tons. Since these years, there has been a variation between the tons of deadweight and gross of container shipping. In 2018 and 2019, the tons increase from 41,111 to 53,966 for gross tons and 34, 795 to 47,800 respectively. In 2020, the gross ton increases by 5,557 while the tons of deadweight decrease by 3600 from 2919 to 2020. These revealed that there has been inconsistent in the tons being ship through the container (See Figure 3).



Source: Researcher’s computation, 2023.

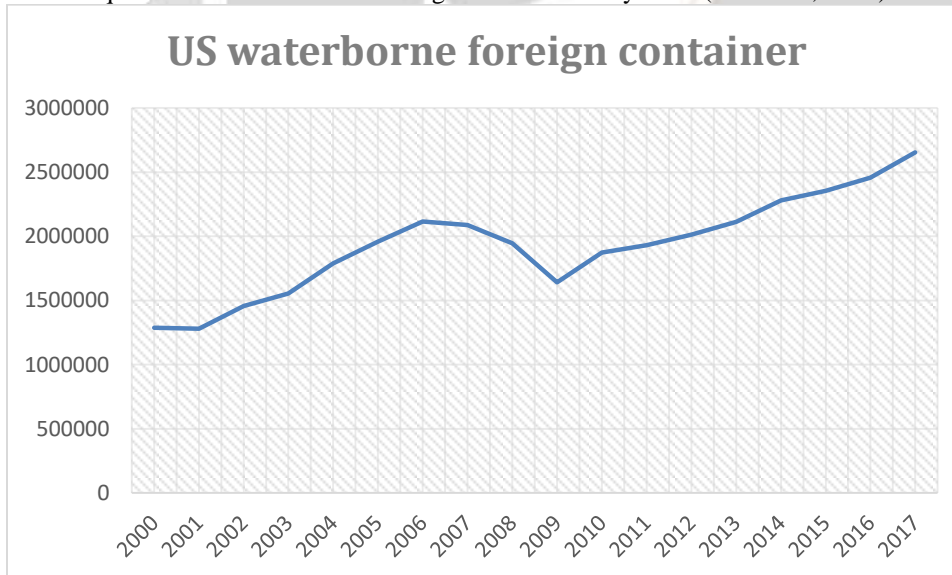
Figure 3: Container Shipping

The result has shown that the amount of weights in tonnes that either a tanker, container or cargo can carry varies in size especially when they are loaded to the maximum permissible draught. The deadweight of vessel usually includes fuel, fresh water, gear supplies, catch, and crew. Meanwhile, the gross ton which seems not as higher as deadweight is a function of the volume of all of a ship’s enclosed space measured to the outside of the hull framing being carried by either the tankers, the containers, and the cargo (See Figure 1, 2, and 3).



Source:

The slight difference in the deadweight and the gross tons has been as a result of the change of measurement system applicability which can either be under 79 feet in length or a non-self-propelled or recreational vessel. Some vessels are met to be a length of 79 feet or more might also need to be measured using the Convention measurement system. This includes recreational boats with keel laid dates after December 31, 1985, as well as ships that engage in foreign voyages and travel outside the Great Lakes. Vessels under 79 feet in length cannot be measured using the Convention measurement system, but they can be measured using the Standard and Dual systems. The Navigation and Vessel Circular (NVIC) 11-93, Applicability of Tonnage Measurement Systems to U.S. Flag Vessels, contains all the requirements for the use of tonnage measurement systems (MARAD, 2020).



Source: Researcher’s Computation, 2023.

Figure 4: US waterborne foreign container.

However, the convention system is the primary tonnage measurement system recognized by American law for the majority of vessels 79 feet and longer. However, if the vessel owner requests it, the length of the vessel may also be measured under the "optional" Regulatory system in order to apply domestic laws that were in force before July 19, 1994. The Regulatory system is applied in all circumstances to vessels that are under 79 feet in length.

5.0 Conclusion and Recommendations.

The US maritime administration is guided by rules and laws on what to import and export from the US with the highest number of tons to be carried out by either the tankers, containers and cargo. MARAD is aware that maritime transportation system must be environmentally sustainable, safe, and built to support economic and national security in a more interconnected world. The agency works day and night to ensure safety, national security to efficient use navigable waterways, well-managed ports, and competitiveness in international trade. The US always maintains a fleet of private commercial oceangoing carriers that can complete the international shipping market using cargo preference and international agreements. Based on this, the study suggested that the agency should work on how to increase the use of US extensive navigable network. Also, the agency should always supply ports with the equipment and materials required to boost international trade, enhance infrastructure and accommodate the largest international carriers.

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