



ACQUISITION RESEARCH PROGRAM SPONSORED REPORT SERIES

Governmental Influence on Shipbuilding

June 2024

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Naval Postgraduate School

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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ABSTRACT

This capstone explores the decline of the U.S. shipbuilding industry from its post–World War II dominance to its current diminished state, analyzing the impacts of restrictive legislation such as the Merchant Marine Act of 1920 (Jones Act) and the end of the construction differential subsidy (CDS) in 1981. These factors have significantly reduced U.S. competitiveness with foreign shipyards, leading to a significant decrease in shipbuilding output and capacity.

The research conducts a detailed review of U.S. shipbuilding regulations, comparing them against the effective and often government-supported policies of European and Asian counterparts. This study uses qualitative and quantitative methods to evaluate how historical subsidies and the Jones Act have influenced the industry’s decline and proposes legislative and regulatory reforms based on successful international practices.

The findings recommend a framework to revitalize the U.S. shipbuilding industry, including introducing expanded cabotage laws, reevaluating the Jones Act, and moving towards a more globally integrated regulatory approach. The U.S. shipbuilding industry can regain its competitive edge in the global market through strategic policy adjustments.



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I would first like to thank Professor Hirschman for introducing the idea of analyzing the shipbuilding industry. As a two-time pre-commission Supply Officer, this subject is near and dear to my heart, having brought two Navy ships to life. Shipbuilding is incredibly broad, reaching across numerous industries and the government, both DOD and civilian. I appreciate Professor Hirschman's patience in allowing me to navigate between various ideas. Taking this on solo proved to be a larger task than anticipated because of the scope of literature needing to be reviewed. Professor Hirschman was critical to ensuring the scope of the capstone was maintained and attainable. Second, Professor Mortlock. A latecomer to the capstone advisory team, he had no hesitations in accepting my request. A seasoned advisor, Professor Mortlock had very impactful and quick turnarounds on the edits. He gave me the additional directions needed to ensure a good product. Lastly, I want to thank my wife, Kari, and family for supporting my many hours in the library. We came to NPS from a very demanding sea tour that commanded all my time and although I have spent a large portion of my time at NPS in the library or courses, she has never once objected or lacked support. Thank you for continuing to support my Navy career through the last 19 years.



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LIST OF ACRONYMS AND ABBREVIATIONS

AWES	Association of West European Shipbuilders
CBO	Congressional Budget Office
CDS	Construction Differential Subsidy
CESA	Community of European Shipyard Associations
COSTIND	Commission of Science, Technology and Industry for National Defense
DOC	Department of Commerce
DOT	Department of Transportation
DWT	Deadweight Tonnage
EC	European Commission
EU	European Union
FMB	Federal Maritime Board
FMC	Federal Maritime Commission
GDP	Gross Domestic Product
IMF	International Monetary Fund
MARAD	Maritime Administration
MILT	Ministry of Land, Infrastructure, Transport and Tourism
MOF	Ministry of Oceans and Fisheries
MSB	Maritime Subsidy Board
NDRF	National Defense Reserve Fleet
ODS	Operating Differential Subsidy
OECD	Organization of Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
U.S.	United States
USSB	United States Shipping Board
WBG	The World Bank
WSA	War Shipping Administration



WTO	World Trade Organization
WWI	World War I
WWII	World War II



I. INTRODUCTION

A. PROBLEM STATEMENT

A maritime nation highly reliant on freedom of navigation, the United States showed its shipbuilding prowess throughout and at the conclusion of World War II (WWII). From 1939 to 1945, the United States produced nearly double the major oceangoing vessels compared to the subsequent five largest producers of ships, numbering 8,812 (United States) to 3,186 (United Kingdom, 1,156; Germany, 954; Japan, 589; Italy, 327; the Soviet Union, 161)) (Statista, 1998). As of 2022, however, the United States is only responsible for producing five oceangoing commercial ships and plans to have nine U.S. Navy vessels completed in fiscal year 2024 (Frittelli, 2023; O'Rourke, 2023). This represents a considerable reduction in U.S. shipbuilding capacity. Since its implementation, the Merchant Marine Act of 1920 section 20, commonly known as the Jones Act, has had significant negative impacts on the U.S. shipbuilding industry and its ability to compete with foreign shipyards (Grabow et al., 2018). Initially introduced by Senator Wesley Jones of Washington to reinvigorate the U.S. shipbuilding industry after World War I (WWI), the Jones Act was primarily intended to serve as a protectionist piece of legislature and to relieve the United States from relying on foreign-built ships (Grabow et al., 2018). As an additional measure, the U.S. federal government implemented the construction differential subsidy (CDS) to ensure competitiveness on the global stage. Because of the CDS expiring in 1981, shipbuilder consolidations and cost-cutting measures would be seen in U.S. production capacities going into the future (Muhammad, 2017).

B. PURPOSE STATEMENT

This research analyzes the shipbuilding industry's current regulatory framework, compares this to known effective measures countries overseas have taken, and recommends a potential future state framework to invigorate the shipbuilding industry in the United States.



C. RESEARCH QUESTIONS

The primary objective of this capstone is to address the following questions: What impact have government laws and regulations had on the U.S. shipbuilding industry? What potential frameworks for new government laws and regulations could help reinvigorate U.S. shipbuilding to compete with other countries?

D. SCOPE AND LIMITATIONS

The scope of this study focuses on major shipbuilding histories, laws, and regulations within the United States, European Union, and Asian markets dating from WWI to the present. These markets were chosen because of the differentiation in implementing government interventions and the shift of the market share from one region to another.

This study does not evaluate the economic impacts of the workforce and material costs for shipbuilding in depth. While trickle-down economics has often been viewed as a net positive effect because of shipbuilding subsidies, this aspect will not be explored. Additionally, this study will not examine the impacts and issues related to countries registering vessels in more regulatory lenient nations through flags of convenience.

E. METHODOLOGY

This study utilized an extensive review of government reports, academic journals, books, news articles, and economic theories to build a comprehensive background on the U.S. shipbuilding industry and events that impacted it. Following this background, a literature review of impactful government laws and regulations from the U.S., European Union, and Asian markets was conducted. Subsequently, a qualitative cause-and-effect analysis will be employed to address the research questions concerning the impacts of laws and regulations on the shipbuilding industry. This analysis will also assist in formulating recommendations for a future regulatory framework aimed at revitalizing the industry.

Chapter II provides a history of the U.S., European Union (EU), and Asian shipbuilding industries and identifies the point of decline for U.S. shipbuilding production and its corresponding market. Chapter III includes a review of the economic theory of



subsidy impacts on the market, laws and regulations, and current European and Asian shipyard economic models. Chapter IV analyzes the methodologies and data to provide recommendations for new laws, regulations, and future areas for research. Finally, Chapter V briefly summarizes and discusses the path forward.



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II. BACKGROUND: HISTORY OF SHIPBUILDING

A. WORLD WAR I–WORLD WAR II

Toward the later years of WWI, U.S. shipbuilding production had hit its stride when President Woodrow Wilson implemented the Emergency Fleet Corporation and the U.S. Shipping Board (USSB). These two organizations would be responsible for launching 95 vessels in just 24 hours (Naval History and Heritage Command, n.d.). From April 1917 to September 1918, the Emergency Fleet Corporation and the USSB were responsible for increasing the U.S. Merchant Marine fleet from 2.75 to 9.5 million tons, an increase in 470 ships (Naval History and Heritage Command, n.d.). This ultimately led to Congress passing the Merchant Marine Act of 1920, known by its more common name, the Jones Act. Named after its sponsor, Senator Wesley Jones, the act aimed to promote the sale of surplus vessels from WWI to U.S. companies to privatize the industry and have U.S.–built ships carry American trade outside the United States (Maritime Administration, [MARAD] 2022a). Because of the large number of ships produced commercially during WWI, the overall premise of the Jones Act would seem to lead to positive benefits for an industry that had additional capacity for building ships. This would not prove to be the case.

The economic downturn of the Great Depression and the excessive surplus of ships would catapult the industry into an unprecedented slowdown, leading to Congress passing a subsequent reform, the Merchant Marine Act of 1928 (MARAD, 2022a). This reform would offer subsidies in the form of mail contracts in exchange for constructing newer, more modern ships. Positive benefits would be seen immediately, with an increase from 41 shipyards in 1928 to 63 in 1929 (MARAD, 2022a). Under-construction tonnage would increase an incredible 244% (MARAD, 2022a). Although there was a significant increase in the amount of tonnage under construction, the vagueness of the Congressional bill led to abuse of the policy through overdistribution of funds and subsidy abuse, drawing criticism from President Herbert Hoover (MARAD, 2022a). President Hoover attempted to disband the USSB because of these criticisms but was unable to accomplish this task. In 1933, President Franklin D. Roosevelt, wanting to keep control of U.S. shipping in the cabinet department, disbanded the USSB and created the U.S. Shipping Board Bureau. The



U.S. Shipping Board Bureau program was short-lived, and Congress soon passed the Merchant Marine Act of 1936, which established an independent regulatory body, the U.S. Maritime Commission. The primary focus of the Merchant Marine Act of 1936 was to reinvigorate the merchant shipping industry and strengthen U.S. national security by offering two subsidies: the construction differential subsidy and the operational differential subsidy (MARAD, 2022a). Both subsidies were meant to offset the higher cost of building and operating U.S. ships. The Maritime Commission's long-range plan in 1938 called for 500 ships to be built in 10 years; however, after the invasion of Poland by Germany in 1939, this timeline was accelerated to 400 ships annually by 1941 (MARAD, 2022a).

B. WORLD WAR II

Initially, the United States refrained from entering WWII, but it would continue to supply Allied nations with necessary goods (MARAD, 2022a). In an attempt to keep the United States neutral, Congress passed the Neutrality Acts (Office of the Historian, n.d.-a, n.d.-b). The primary purpose of the Neutrality Acts was to repeal the arms embargo, give direction to mariners to avoid certain combat zones, and restrict ships from transporting goods to "belligerent ports" (Office of the Historian, n.d.-b, para. 5). As outlined in section VI of the act, merchant ships were forbidden to arm themselves to act in defense. Subsequent U-boat attacks against U.S. merchant vessels traveling to Europe would cause Congress to repeal the ban on entering combat zones and would come at a great cost, with the United States losing more than 700 merchant ships and 8,000 U.S. merchant mariners throughout the war (MARAD, 2022a). After the attack at Pearl Harbor in 1941, President Roosevelt created the War Shipping Administration (WSA) to supplement the Maritime Commission through administrative and operational control of U.S.-flagged ocean vessels that were non-combatant (MARAD, 2022a). Immediately following the war, the United States became the world's largest shipping fleet operator. Because of the country's surplus of merchant vessels, Congress passed the Merchant Ship Sales Act of 1946, which allowed the sale of excess merchant vessels to U.S. and foreign shipping companies. An attempt to help rebuild the world's shipping fleets, the Merchant Ship Sales Act of 1946 was also responsible for creating the National Defense Reserve Fleet (NDRF) (MARAD 2022a).



The NDRF would serve the function of maintaining surplus vessels that would be immediately ready in the event of another war (MARAD, 2022a).

C. POST–WORLD WAR II REORGANIZATION

Following WWII, Congress dissolved the WSA in 1946 and created the Maritime Administration (MARAD) and Federal Maritime Board (FMB) in 1950 (MARAD, 2022a). Serving as a replacement for the Maritime Commission, these two entities would fall under the Department of Commerce (DOC). The primary function of MARAD would be to focus on national security and defense, while the FMB would focus on regulatory issues. In 1961, Congress once again reorganized the FMB and created the Federal Maritime Commission (FMC) (MARAD, 2022a). The FMC would become an independent organization responsible for all the United States' international maritime shipping. Additionally, the FMB's subsidy functions would now be performed by the Maritime Subsidy Board (MSB) (MARAD, 2022a). These changes to the FMC and the MSB in 1961 ultimately would remain the foundation of the MARAD and subsidy structure through the modern era (MARAD, 2018a).

D. WORLD WAR II–1970

Following WWII, the United States had gone from only 41 to over 63 private shipyards and had a total of eight naval shipyards (Colton & Huntzinger, 2002). Of the approximately 5,171 merchant ships these shipyards produced during WWII, nearly 2,000 were sold under the Merchant Ship Sales Act of 1946 (Tarpgaard, 1984) (MARAD, 2022a). Approximately 57% of those 2,000 ships were sold to foreign companies to rebuild damaged fleets at relatively low costs to the purchasers (Congressional Budget Office [CBO], 1984). The remaining 1,400 were placed in the NDRF for future use if needed for war (CBO, 1984). U.S.-built ships were the largest and most modern commercial vessels being produced at the time. The Liberty and Victory ships, weighing in at 10,500 and 10,850 deadweight tonnage (DWT), respectively, became the workhorses for fleets around the world immediately following WWII (MARAD 2018b, 2022b). Under the Ship Sales Act, the United States began relinquishing its share of the global shipping market. By 1947, the U.S. shipbuilding industry saw an unprecedented slowdown in new work (Muhammad,



2017). This issue was primarily caused by the excess inventory of ships created during the war, labor-intensive processes, and lack of demand for new ships at the conclusion of the war: “In 1947, U.S. merchant shipbuilding output was 54 percent below that of the previous year, and by 1955 output had plummeted to a paltry 119,000 grt [gross registered tonnage]” (Muhammad, 2017, p. 425).

Production continued to drop going into 1950 and leading into the Korean War, primarily driven by the Jones Act and the high cost of constructing ships in the United States. By this time, all wartime production had been completed. Active shipyard numbers began to decline. All but two emergency yards closed, with most private yards significantly scaling back operations (Colton & Huntzinger, 2002). The Korean War provided the remaining shipyards some relief in the form of repair work, but overall, new production slowed, as seen in Figure 1.

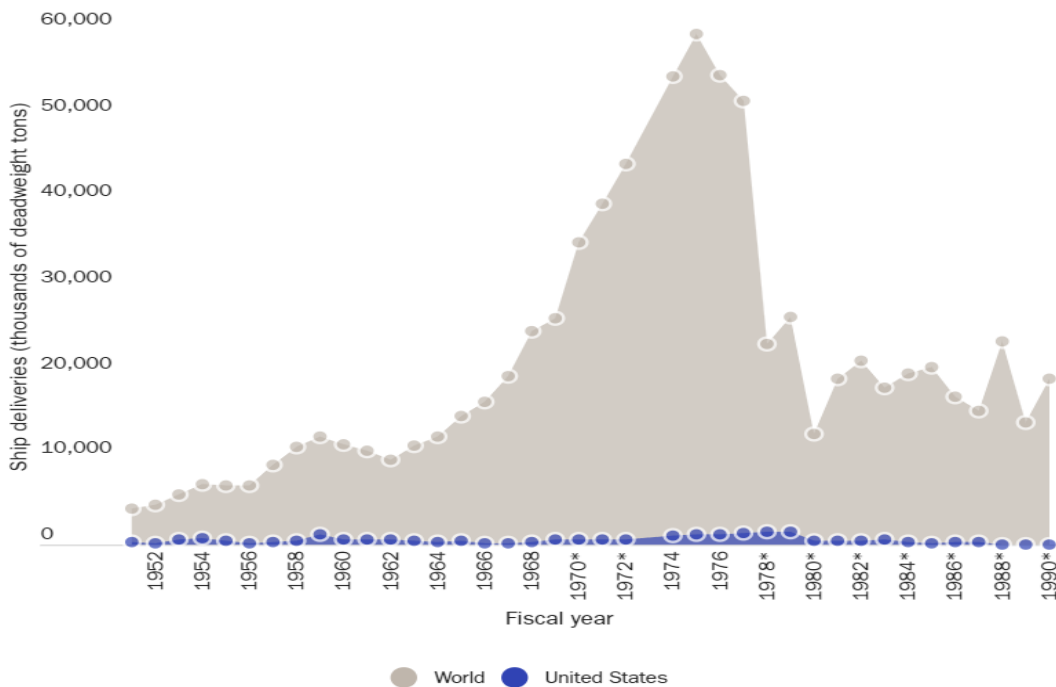


Figure 1. Ship Deliveries by Deadweight Tonnage (DWT): United States vs. World, FY 1951–1990. Source: Grabow (2021).



WWII created a newfound consumption of petroleum that would require additional shipping capacity, as seen in Figure 2. Petroleum products would quickly overtake coal as the world’s primary shipping cargo, and the Liberty- and Victory-class ships were ill-designed to handle this specific type of cargo, leading to foreign countries increasing productivity in shipbuilding to carry petroleum products at much larger capacities (Colton & Huntzinger, 2002). In addition to the shift in fuel types, the devastation caused by WWII forced many countries in Europe and the Pacific to rebuild not just homes and buildings, but also ports and shipyards. This rebuilding allowed countries such as the United Kingdom and Japan to modernize their shipyards to become more efficient than their U.S. counterparts (CBO, 1984). Because Japan was already a large importer of petroleum, it was, at the time, the only nation efficiently producing large tankers, which gave Japan a significant advantage over U.S. and British shipyards. In 1956, Japan became the world’s largest shipbuilding exporter, producing over 50% of the world’s shipbuilding production (Muhammad, 2017, p. 591). Not concerned with the 32,000 DWT limitations of the Suez Canal, the Japanese could expand shipbuilding operations to build larger and larger vessels (Colton & Huntzinger, 2002).

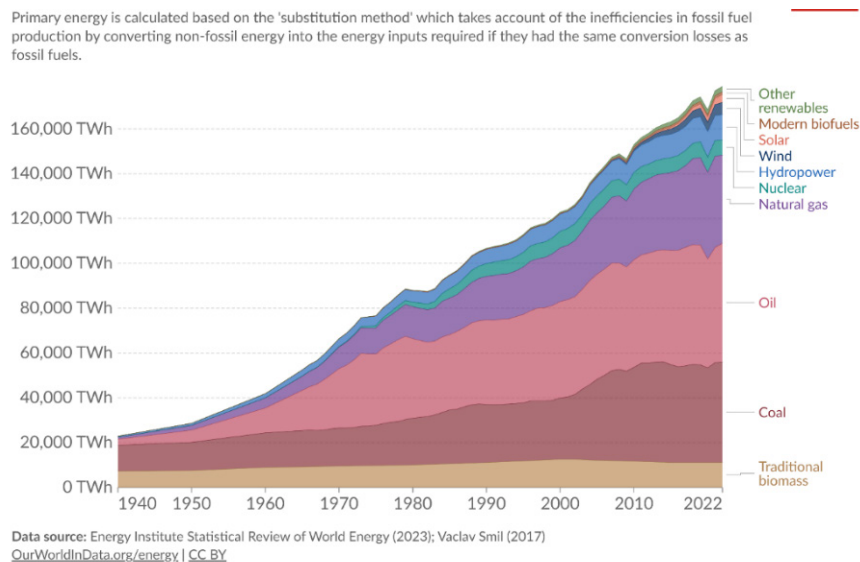


Figure 2. Global Primary Energy Consumption by Source. Source: Ritchie et al. (2023).



In 1956, Egyptian President Gamel Abdel Nasser nationalized the Suez Canal, taking control from the French and the British. During this time, France and Britain arranged deals with Israel that would allow Israel-flagged ships access to the canal they were previously denied. A subsequent blockade of an Israeli port by Egypt led to an Israeli invasion and the start of the Suez Crisis (Varela et al., 2017). With the Suez Canal blocked and the United States and Western European countries demanding Middle Eastern oil, tanker ships would resort to transiting the Cape of Good Hope, which drastically increased transit times (Colton & Huntzinger, 2002). This immediately set into action the production of more and larger tanker ships. According to Colton and Huntzinger (2002), “Not only did the tanker fleet grow by almost 400 percent during this period, but the average size of a tanker grew from 16,000 to 58,000 DWT. The largest tanker in the fleet grew from 85,000 to 550,000 DWT, the point where it remains today” (p.11).

On June 5, 1967, the Six-Day War between Israel and the surrounding Arab nations began, with the closure of the Suez Canal shortly thereafter. This closure would last for 8 years and impact shipbuilding around the world, driving up the demand for heavy, large, and labor-intensive tankers to make the trip around the Cape of Good Hope to the U.S. and European markets (Colton & Huntzinger, 2002). For the Japanese and countries with lower shipbuilding costs, this would be a welcome event. Shipbuilders in Japan, India, and Brazil experienced significant expansion during this time, although India and Brazil’s industries were heavily subsidized (Colton & Huntzinger, 2002). In 1971, Japan managed half of the world’s output of cargo ships, producing just under 12 million tons (Stern, 1972). In comparison, the U.S. output was 482,329 tons, and Britain’s was 1,238,692 tons (Stern, 1972). Recognizing the stagnation of the private shipyard sector, the U.S. Navy shifted construction of its vessels to private shipyards to not only save 30%–40% on cost but also to ensure the industry’s viability (Colton & Huntzinger, 2002). This resulted in the Navy closing shipyards in Boston, Brooklyn, and San Francisco and moving away from new construction building in Navy yards by 1972 (Muhammad, 2017, p. 426; Colton & Huntzinger, 2002).



E. POINT OF DECLINE: 1970–2000S

In 1968, President Nixon came into office and aimed to add amendments to the Merchant Marine Act of 1936 to revitalize the shipbuilding industry. This new Merchant Marine Act of 1970 looked to increase the production of commercial ships by providing an improved construction differential subsidy (CDS) system, consistency in construction over longer periods, and a relaxation in language to expand the use of subsidies (MARAD, 1971; Emery, 1971). Since 1950, the fleet of active American-flagged ships had decreased dramatically, numbering 1,145 in June 1950 to fewer than 700 ships in 1971 (MARAD, 1971). President Nixon challenged the shipbuilding industry to modernize the U.S. fleet while relying less on the U.S. government for financial support. President Nixon addressed Congress, stating,

Our program is one of challenge and opportunity. We will challenge the American shipbuilding industry to show that it can rebuild our Merchant Marine at a reasonable expense. We will challenge American ship operators and seamen to move toward less dependence on government subsidies. And, through a substantially revised and better-administered government program, we will create the opportunity to meet that challenge. (MARAD, 1970, p. 1))

In the years preceding the Merchant Marine Act of 1970, only 81 oceangoing ships were built by U.S. shipyards. Under the revised act, 300 advanced-design ships would be built over 10 years (MARAD, 1971). Some major aspects of President Nixon's amendments to the Merchant Marine Act would include the reduction of the CDS from its current rate of 55% down to 50% and, over the following 6 fiscal years, reduce 2% per year, settling on 35% (MARAD, 1971). The rate would be negotiable to match foreign shipbuilding price levels and would now include dry and liquid bulk loads. The Buy American verbiage would allow the secretary of commerce the ability to waive the requirement for ships to be built with American-made equipment and materials if the ship delivery would be delayed because of late receipt of domestic materials (MARAD 1970). The initial indications were that the amendments were effective, with 41 merchant ship orders awarded in 1973, as seen in Figure 3 (CBO, 1984).



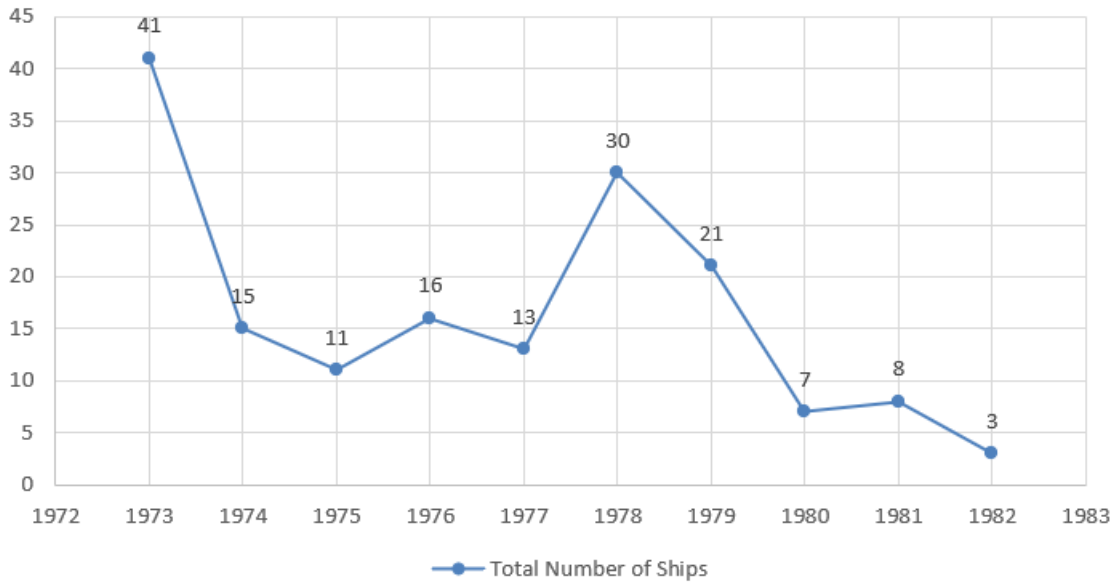


Figure 3. Merchant Ship Orders Awarded to U.S. Shipyards 1973–1982 (for ships of 1,000 gross tons and over). Source: CBO (1984).

President Nixon’s success would prove to be short-lived. In October 1973, the Fourth Arab–Israeli War began. The United States, a staunch supporter of the Israelis, supported their defense of land taken during the Third Arab–Israeli War by re-supplying the Israeli military. In response, the Organization of Petroleum Exporting Countries (OPEC) imposed oil embargoes on the United States and other countries that supported Israel, which resulted in oil prices skyrocketing to quadruple the price (Murphy & Tenold, 2017). This event would become the catalyst that drove the decline of the U.S. shipbuilding industry. The United States, now a heavy consumer of imported oil, struggled to alleviate the strain on inflation through increased production and use of strategic reserves (Office of the Historian, n.d.-c). In contrast to the effects of the Suez Canal closure in 1967, where the closure caused a surge in cargo vessel construction to make the more extended voyage, as the oil demand decreased, the demand for tanker fleets plummeted side by side (Colton & Huntzinger, 2002). The impact on the shipbuilding industry around the world was almost immediate and lasted through the 1970s, stagnating production in Western countries through the 1980s (Colton & Huntzinger, 2002). The Western nations and countries that had dominated the shipbuilding industry, such as Japan, cut back shipbuilding capacity by as much as 35%; meanwhile, South Korean companies Hyundai Group, Daewoo, and



Samsung took advantage of this slowdown in competitor production by opening modern shipyards in Ulsan, Okpo, and Koje, South Korea (Colton & Huntzinger, 2002; Murphy & Tenold, 2017).

Shortly after the U.S. stock market had recovered from the oil embargoes in the late 1970s, consolidation and closure of shipyards began, as seen in Figure 4. Deliveries of new vessels rebounded, but only temporarily.

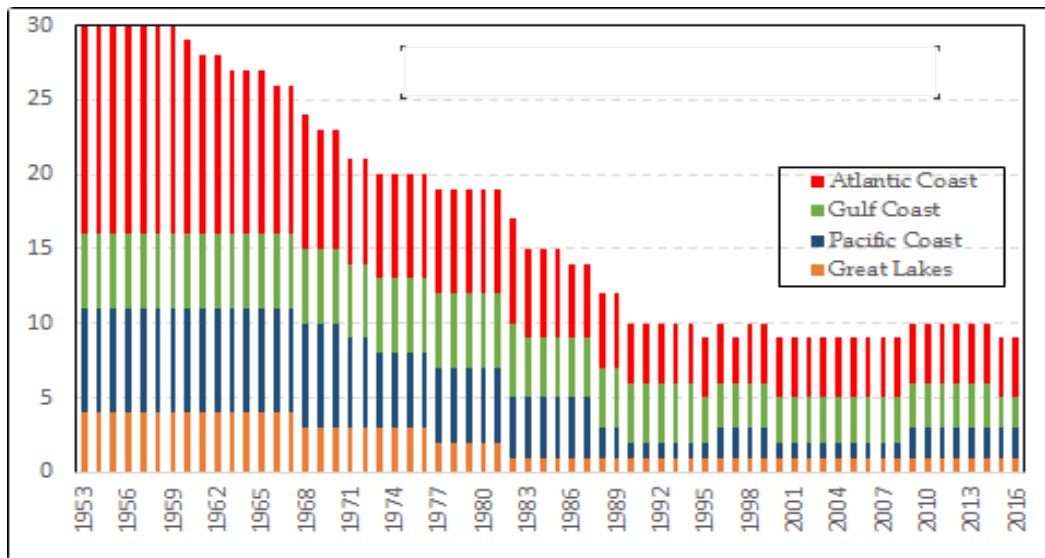


Figure 4. Numbers of Large U.S. Shipbuilders. Source: Colton (2016).

A new but familiar threat began to emerge in the 1980s. As oil prices started to normalize, U.S. labor rates in the shipbuilding industry continued to climb, and the dollar valuation to the Japanese yen declined. By 1984, approximately 389, or 68%, of U.S.-owned ships were under flags of convenience and registered in other countries (CBO, 1984). The annual cost of a typical containership crew reached \$3.904 billion in the United States, \$1.515 billion in the UK, and a mere \$623,000 in Singapore (CBO, 1984). Likewise, the capital cost comparison between manufacturing ships in the United States versus Japan was staggering. A U.S.-built bulk carrier's average cost was \$69 million, while a Japanese carrier only cost \$22.5 million (CBO, 1984). The U.S. shipyards simply could not compete with their counterparts in Japan and the Republic of Korea. With such

a steep differential in costs, the United States sustained large declines in ship deliveries and shipyard capacity. By 1990, the United States was delivering no commercial ships over 1,000 gross tons. Japan's output in this same year reached 174 ships (MARAD, 1990). Most of the major U.S. shipyards had gone bankrupt or merged, leaving 10 active shipyards (Colton, 2016). According to the 1990 MARAD Report on Survey of U.S. Shipbuilding and Repair Facilities, New ships on order or under construction in the United States as of December 31, 1990, included only three commercial ships in comparison to 88 U.S. Navy ships, as seen in Figure 5.

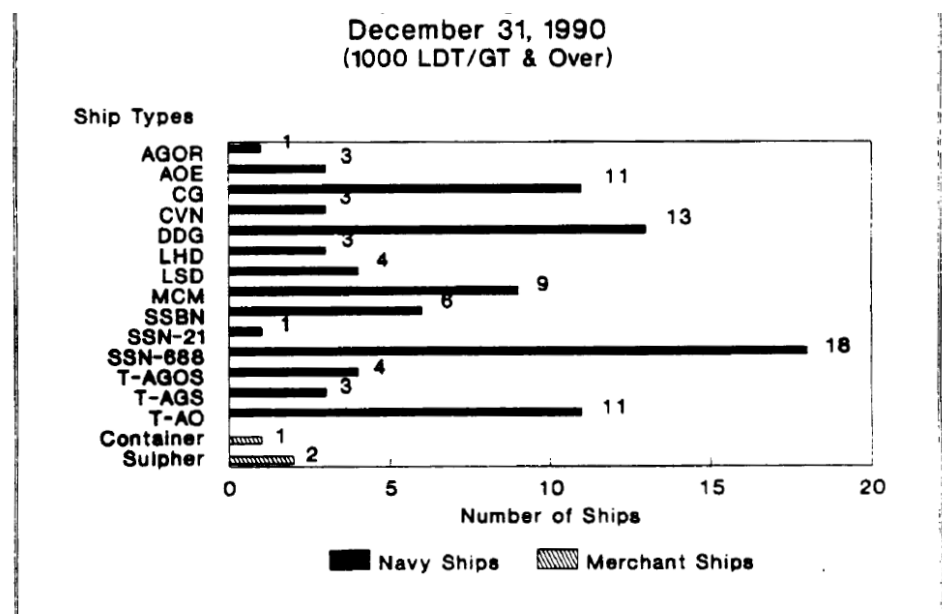


Figure 5. U.S. Shipbuilding Orderbook. Source: DOC (1990).

Seven additional U.S. Navy ships and three commercial ships were placed on order in 1990. All 14 newly delivered vessels in 1990 were contracted via the Department of Defense (DOD). By January 1, 1991, 18 new T-class U.S. Navy ships were under construction or on order (MARAD, 1990a).

Following the Gulf War in 1990 and the end of the Cold War in 1991, the U.S. shipbuilding industry was optimistic that there would be a rebound in shipbuilding to



replace the aging commercial fleet. Significant DOD cutbacks following the end of the Cold War would create the potential for shipyards to produce more commercial vessels. From 1992 to 1997, the U.S. Navy's procurement of ships would drop by 50% (U.S. International Trade Commission, 1992). Through this same period, the market share of ships built by the Republic of Korea and Japan would greatly increase, reaching 33% and 39%, respectively (Closs et al., 2001). The U.S. International Trade Commission in 1992 estimated "that the lowest bid by a U.S. shipbuilder was, on average, 97 percent higher than the lowest bid of a foreign shipbuilder" (p. xiii). This price differential effectively priced the United States out of building commercial vessels for sale overseas.

In 2003, MARAD published a report outlining the health of the U.S. private shipbuilding industry. Active shipyards had shrunk to nine active shipbuilding yards, with the remaining 65 shipyards focusing strictly on repair. The number of skilled production laborers also dropped from approximately 112,000 personnel in 1982 to 45,000 in 2003. As the war in Afghanistan and Iraq continued, U.S. reserve ships would move needed material from the United States to the Middle East. Likewise, in response to the Haiti earthquake, four reserve ships were activated and put into use, once again showing the utility of maintaining a reserve fleet for conflict or humanitarian assistance (MARAD, 2011). In FY 2011, the available Jones Act qualified ships had decreased by 70% from their 2003 numbers. As of September 30, 2010, there were 23 pending ship loan applications (Department of Transportation, n.d.-b). Of the 23 vessels pending, seven were tankers. The remainder were composed of tugs, barges, and drill support ships (MARAD, 2011).

Since the inception of the Merchant Marine Act in 1920, the U.S. Shipbuilding industry has seen massive fluctuations in ship manufacturing deliveries and capacity. The U.S. was responsible for beginning of a global shipbuilding revolution during and proceeding WWII. Its manufacturing technics were reproduced and refined in the nations that currently lead global production. Chapter III will conduct a literature review of the U.S., EU, and Asian government laws and regulations to better understand why the U.S. began its steep decline and how competitor governments have enabled incredible amounts of capacity.



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III. LITERATURE REVIEW

A. REVIEW OF U.S. SHIPBUILDING LAWS AND REGULATIONS

Following the American Revolution, the evolution of shipbuilding regulations found its roots under the guise of *cabotage*. Cabotage in the context of laws and regulations is defined as “a set of laws made by a government of a country to prevent or limit the transport of goods or people within the country’s borders by foreign vehicles, ships, or aircraft” (Cambridge University Press, n.d.). To protect U.S. merchant fleets from foreign competition, the First Congress implemented cabotage in 1789, which lowered the tariff rate of U.S.-flagged vessels versus their foreign competitors (DOT, n.d.-a). Shortly following the implementation of those tariffs, Congress passed the Navigation Acts of 1817, which barred foreign vessels from operation in U.S. domestic commerce. The Passenger Act of 1886 and its subsequent amendment in 1898 further extended these restrictions to passenger vessels operating in the United States (DOT, n.d.-a). Following the closure of WWI, the United States understood the importance of a ready reserve fleet and enacted the Merchant Marine Act of 1920, otherwise known by Section 27 of the law as the Jones Act (DOT, n.d.-a).

The Merchant Marine Act, specifically the Jones Act, has driven shipbuilding and subsequent regulations since its enactment. Introduced by Washington State Senator Wesley Jones, “The Merchant Marine Act of 1920 is an earnest effort to lay the foundation of a policy that will build up and maintain an adequate American merchant marine in competition with the shipping of the world.” (Jones, 1921, pg. 89). The Merchant Marine Act of 1920 expanded on the previously passed Navigation Act of 1817 and the Passenger Vessel Service Act of 1886 by extending coastwise laws to Alaska and clarifying that coastwise laws can be waived for national security purposes (International Propeller Club of the United States, n.d.). The key restrictions set in place on vessels transporting merchandise from one U.S. point to another dictated that they must be:

- a U.S.-flagged vessel,
- owned by a U.S. citizen,
- built in a U.S. shipyard, and



- composed of a crew that was 75% U.S. citizens. (International Propeller Club of the United States, n.d.)

Although the aim of these acts was to boost U.S. shipbuilding productivity and ensure the security of the nation, the Great Depression pushed the shipping industry into decline (International Propeller Club of the United States, n.d.).

As a part of the New Deal, Congress passed the most important amendment to the Merchant Marine Act, The Merchant Marine Act of 1936. The amendment's purpose was to offset foreign competition through two subsidies: the construction differential subsidy (CDS) and the operating differential subsidy (ODS) (MARAD, 2022a). The CDS would offset the cost of building U.S. ships through the payment of up to 50% of the difference in cost to the shipyard. Likewise, the ODS would offer assistance as outlined in Section 603(b): the

differential subsidy shall not exceed the excess of the fair and reasonable cost of insurance, maintenance, repairs not compensated by insurance, wages, and subsistence of officers and crews, and any other items of expense in which the Commission shall find and determine that the applicant is at a substantial disadvantage in competition with vessels of the foreign country. (American Merchant Marine at War, 2004, section 603, para. b)

This would prove to be a critical primer in meeting an annual output of 400 ships during WWII (MARAD, 2022a). Following WWII, the United States emerged as the largest producer of modern cargo vessels, leading to the implementation of the Merchant Ship Sales Act of 1946 (MARAD, 2022a). This act allowed the Maritime Commission to “sell surplus merchant ships to civilian ship operators, including foreign shipping companies” (MARAD, 2022a, para 17). Between 1940 and 1945, the United States produced 5,037 merchant vessels. Of those 5,037 vessels, 843 were sold to U.S. operators, while 1,113 were sold to foreign operators (Hannaford, 1980).

The final amendment to the Merchant Marine Act would occur in 1970 under President Nixon with the aim of reinvigorating a slowed and aging shipbuilding industry. Under the 1970 amendment, the ODS would be extended to bulk carriers and tankers (Franco, 1973). The CDS was also extended to bulk carriers, and maximum rates were



established that would be directly paid to the shipyards. Due to these changes, the United States would see an uptick in shipping activity for the first few years but then be hampered by world events. Following the Vietnam War, President Reagan would fully remove the government from the private sector in 1981 by terminating all shipbuilding construction subsidies (Varela et al., 2017).

B. ATTEMPTS TO REPEAL THE MERCHANT MARINE ACT

On numerous occasions since the beginning of the decline of the shipbuilding industry, legislation has been brought forward in attempts to repeal the Jones Act. 2010 Arizona Senator John McCain and his co-sponsor Utah Senator Mike Lee introduced the Open America's Waters Act. This initial bill would repeal the limitations of the Jones Act that required coastwise trade to be conducted by U.S.-built ships. The bill failed and continued to do so when it was re-introduced in 2015, 2016, 2017, 2018, and for the last time in 2021 by Senator Mike Lee. Later attempts would focus specifically on oil and gas tanker operations in the United States (S. 1646, 2021).

In 2019 and 2021, Representative Ed Case of Hawaii submitted three bills in an attempt to amend the Jones Act: the Noncontiguous Shipping Act, the Noncontiguous Shipping Reasonable Rate Act, and the Noncontiguous Shipping Relief Act. The Noncontiguous Shipping Act focused primarily on exempting noncontiguous states from Jones Act restrictions (117th Congress, 2021–2022a). The Noncontiguous Shipping Reasonable Rate Act would classify rates as “reasonable if such rate is within 10 percent of a rate set by a comparable international ocean rate index recognized by the Federal Maritime Commission” (117th Congress, 2021–2022a, section 2). Finally, the Noncontiguous Shipping Relief Act would allow the transportation of merchandise to noncontiguous states utilizing foreign-flagged ships (117th Congress H.R. 300, 2021b). In an attempt to repeal all of the restrictions of the Jones Act, Representative Justin Amash of Michigan introduced the Jones Act Repeal Act, which would remove all coastwise laws (116th Congress H.R. 8996, 2020). Although many bills have been introduced over the past decades, none have successfully been implemented, leaving the shipbuilding industry in a similar disadvantaged position.



C. REVIEW OF EUROPEAN UNION SHIPBUILDING LAWS AND REGULATIONS

Although the same world events that devastated the U.S. shipbuilding industry also impacted shipbuilding in the European Union (EU), the EU has managed to remain competitive even as Asia-based manufacturers have continued to absorb the market share through cheaper materials and labor, higher subsidy rates, and lower taxes. As seen in Figure 6, the EU has vastly outpaced its competitors outside of Asia.

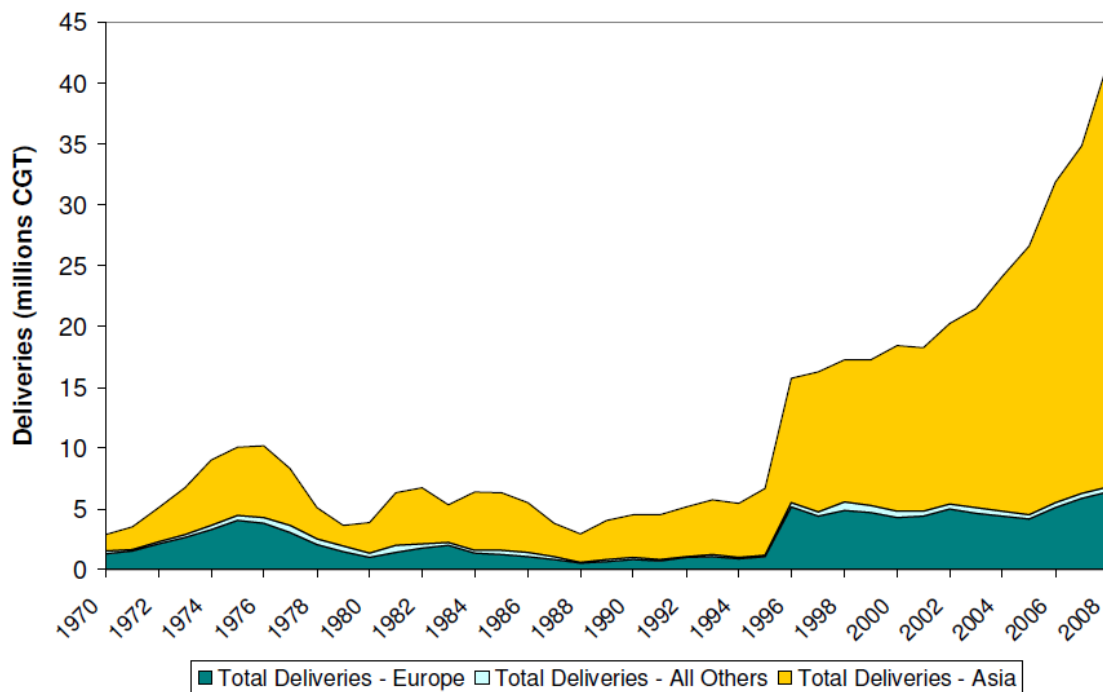


Figure 6. Total CGT Completed by Main Regions from 1970 to 2008.

Source: ECORYS SCS Group (2009).

Before the establishment of the EU as a regulatory body in 1993, many countries in Europe self-regulated their shipbuilding and shipping industries. An early attempt to organize and coordinate the industry took form in the establishment of the International Shipbuilding Conference in 1937. Following WWII, the West European Shipbuilders Informal Contacts was established and was renamed in 1965 as the Association of West European Shipbuilders (AWES) (CESA; n.d.). AWES established the European Community Linking Committee in

the 1980s, which is now known as the Community of European Shipyard Associations (CESA, n.d.). These two organizations merged, resulting in a unifying effort under CESA. Representing 20 nations, CESA is one of many organizations that have had a critical role in influencing EU policies and regulatory framework. Likewise, the Organization for Economic Co-operation and Development (OECD; n.d.-a) has been at the forefront of policy development since its inception following WWII. Formerly known as the European Economic Co-operation, the OECD encompasses 37 democracies collaborating to develop mutually beneficial economic policies (U.S. Department of State, n.d.). OECD has incorporated the membership of two major shipbuilding competitors, the Republic of Korea and Japan (OECD; n.d.-b). In fact, “Today, OECD member countries account for three-fifths of world gross domestic product (GDP), three-quarters of world trade, over 90 percent of global official development assistance, half of the world’s energy consumption, and 18 percent of the world’s population” (U.S. Department of State, n.d., para. 2). This economic robustness has allowed for flexibility in regulation development and subsidy implementation.

Prior to the official formation of the EU in 1993, the regulatory body known as the Council of the European Communities (EEC) was active in attempting to level the playing field for European countries in the shipbuilding industry. On December 21, 1990, the council passed Council Directive 90/684/EEC, which was one of the first major attempts by European countries to enhance the competitiveness of the European industry and consolidate the broken state-run subsidy regulations into one consistent regulatory framework (Council of the European Union, 1992). The primary intent of Council Directive 90/684/EEC was to limit the amount of aid a member state could provide to their shipbuilding industries and ensure internal market fairness across states. The directive required member states to notify the commission of aid given to a shipbuilder with the purpose of verifying that “considered compatible with the common market” (Council of the European Union, 1990, Article 1, para. d). Lastly, the directive restricted specific types of state aid through the oversight of the commission to verify that the aid met common market guidelines under the conditions of “innovation, specialization, working conditions, health, safety, and the environment” (Council of the European Union, 1990, Article 6, para. 4). Council Directive 90/684/EEC would subsequently be amended under Council Directive 92/68/EEC and Council Regulation (EC) No. 1540/98.



Council Directive 92/68/EEC's primary purpose was to admit the German Democratic Republic access to the internal market while ensuring adherence to the aid regulations established in Council Directive 90/684/EEC (Council of the European Union, 1990, 1992).

The OECD made attempts to establish competitive conditions worldwide through an international shipbuilding agreement known as the Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry (Organization for Economic Cooperation and Development, n.d.-c). This agreement would address low global prices and inconsistencies in subsidy grants. OECD member states Finland, Japan, the Republic of Korea, Norway, and Sweden all ratified the document. The only country that refused to ratify was the United States, which prevented the agreement from entering into force (OECD, n.d.-c). Following the failure to adopt the Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry, the EU passed Council Regulation (EC) No 3094/95, which further expanded on Council Directives 90/684/EEC and 92/968/EEC with a specific focus on state aid for innovation/research and development, ship conversion, training, and environmental protection (Council of the European Union, 1995). Unlike the 1992 directive, in which governments were required to transpose the directive language into national government law, leaving room for variation among member states, the EU regulation was directly enforceable by the European Commission (EC). This allows the EC to ensure consistency across all member states (Council of the European Union, 2022a, 2022b).

At the conclusion of the 20th century, the competition across the shipbuilding landscape continued to intensify, with Asian markets producing more and cheaper vessels, which continued to drive the EU to refine shipbuilding regulations. Council Regulation No. 1540/98 was a significant drive toward the modernization of the EU member state shipbuilding industry through innovation. It detailed the permissible types of aid to the shipbuilding industry: closure (Article 4), restructuring (Article 5), innovation (Article 6), regional (Article 7), research and development (Article 8), and environmental protection (Article 9) (Council of the European Union, 1998). Each category would be permissible under certain conditions and regulated through the transparency and notification requirements outlined in the regulation articles, Articles 10 and 11. This regulation promoted innovation



and efficiency in the construction, conversion, and repair of ships under the EU umbrella and would remain in effect until 2003 (Council of the European Union, 1998).

With the expiration of Council Regulation No. 1540/98, the EC developed the Framework on State Aid to Shipbuilding in 2003, which took effect January 1, 2004. The primary objective was similar to that of Council Regulation No. 1540/98 in that it refined state aid requirements to ensure the competitiveness of the internal EU market while supporting innovation by linking it to greener ships. Although this was more strategy than regulation, it would be used to evaluate adherence (Woolich, 2010). Being conducted concurrently with the Framework of State Aid to Shipbuilding was the LeaderSHIP 2015 initiative of 2003 (European Commission, 2003). While both initiatives addressed the issue of competitiveness of the EU shipbuilding industry and state aid, LeaderSHIP 2015's primary purpose was to bring together a wide range of shipbuilding industry stakeholders to enhance the EU's competitiveness and innovation to meet market demands. Ultimately, it aligned the numerous EU policies with the needs of industry. This realignment of the strategy was a pivot to leverage the niche markets of complex shipbuilding that the EU led (European Commission, 2003).

Following the successes of LeaderSHIP 2015, the EU and EC implemented two strategies that would drive the EU shipbuilding industry into 2020, LeaderSHIP 2020 and Horizon 2020. Developed and run by the EC, LeaderSHIP 2020 built on the policy successes of LeaderSHIP 2015. Its primary focuses were research and development, green initiatives, specialization in high-tech markets, and diversification into new markets. Likewise, investments in training and skill development would ensure the necessary skills for modern shipbuilding (European Commission, 2015). With these outlined policies, there would be a need for substantial funding. To address this issue, the EU developed the complementary strategy of Horizon 2020. Through Horizon 2020, the EU would invest nearly €75.6 billion over 7 years (2014–2020) into research and innovation (European Commission, n.d.-a, n.d.-b). Although Horizon 2020 was not solely limited to the shipbuilding industry, it provided much assistance to the shipbuilding industry. It was so successful in transferring assistance over its 7 years, it would have needed an additional €159 billion to fund all of the proposals submitted. In 2015, Intereconomics EU conducted a review of the effort, noting that the EU's overall research and development investment relative to its GDP fell short of worldwide



competition at or just below 2%, short of the 3% goal (Cincera et al., 2015). At the conclusion of Horizon 2020, R&D had risen to 2.32% (Mitra & Niakaros, 2023). Although the EC did not specifically state the impacts of Horizon 2020 on the shipbuilding industry, overall, participants of the program saw a 20% increase in employment and a 30% output growth. After analysis by the EC, the EU would propose and put into force the Horizon Europe effort, which expanded on Horizon 2020 with investments of €95.5 billion over 7 years (European Commission, 2021).

One of the most impactful regulations passed by the EU has been Council Regulation (EC) no 3577/92. This regulation focuses on cabotage between member states. Similar to U.S. cabotage under the Jones Act, cabotage, specifically in the maritime domain, is the restriction to shipping of merchandise from one port to another within a specific country. The primary focus of cabotage is protecting the local shipping industry and ensuring national security. However, unlike the United States, which is one nation, the EU is host to 27 member states. This allows flexibility and promotion of additional economic activity because these member states are not limited to in-nation commerce but rather the entire EU (MacGregor, 2022; DOT, n.d.-a).

D. ASIAN SHIPBUILDING INDUSTRY LAWS AND REGULATIONS

This section focuses on the Asian shipbuilding industry and the laws and regulations that have enabled this market to be exceptionally successful in the global shipbuilding industry.

1. The Republic of Korea

South Korean shipbuilding has a long history of government assistance guided by one primary and one secondary organization that manages its shipbuilding industry. The first is the Korean Ministry of Trade, Industry, and Energy (MOTIE), formerly known as the Ministry of Knowledge Economy, which is responsible for policy and strategy (OECD, 2015). Second is the Ministry of Oceans and Fisheries (MOF), which manages shipping, develops maritime resources, and modernizes domestic coastal ships (OECD, 2015).



“After gaining independence in 1948, the South Korean government established the Korea Shipbuilding and Engineering Corporation (KESC). The Government further acted to allocate capital, expand facilities, and facilitate imports of ship components.” (Dun & Bradstreet, n.d., p. 16). In May 1961, the Park Chung Hee regime overthrew the government in a military coup, ultimately leading to the Heavy and Chemical Industrialization promotion policy. This policy would greatly aid the shipbuilding industry through “(i) capital incentives, (ii) complementary investments, (iii) trade incentives, and (iv) tax holidays” (Dun & Bradstreet, n.d., p. 16). The two most significant contributors to the shipbuilding industry were the capital incentives, which allowed access to preferential-rate loans through state-owned banks and complementary investments (Dun & Bradstreet, n.d.). Similar complementary investments would be seen again in Japan and China. The shipbuilding industry would give the state-owned Pohang Iron and Steel Corporation an economy of scale. At the same time, Pohang Iron and Steel Corporation provides the shipbuilding with industry lower cost steel relative to world pricing (Dun & Bradstreet, n.d.). From this beginning, the South Korea government set lofty goals for succeeding ten years as seen in Figure 7.

Plan period	Key objectives/ measures
Third Five Year Development Plan (1972-76)	<ul style="list-style-type: none"> • South Korea to be self-sufficient in vessels by 1980. • Shipbuilding exports to reach 1 billion USD by 1980 (3.2 million grt) and 2 billion USD (6.2 million grt) by 1985. • Nine shipyards to be constructed by 1980 and a further five by 1985.
Fourth Five Year Development Plan (1977-81)	<ul style="list-style-type: none"> • Commencement of the production of shipping components domestically • Development of the Planned Shipbuilding Program, which gave guidelines to the shipbuilding sector. Much of the finance of the shipbuilding sector to come from the National Investment Fund and foreign loans. • Government procurement to overcome depressed international shipping markets. • Increased focus on replacing the imports of ships with South Korean-built ships

Figure 7. Third and Fourth Five Year Development Plans for South Korea,
Source: Dun & Bradstreet (n.d.)



As discussed in Chapter II, the 1980s-1990s proved to be a turning point for the South Korean shipbuilding industry. Heavy investments into modern shipbuilding techniques and lower labor and material costs allowed them to establish a foothold in a Japanese-dominated market (OECD, 2015). Numerous industry associations would be created to facilitate this growth, including the Korea Marine Equipment Association and the Korea Shipbuilding Industry Cooperative, which primarily focuses on cooperation among the major shipbuilders (Dun & Bradstreet, n.d.). The Korea Marine Equipment Research Institute and the Society of Naval Architects of Korea have collaborated with the Ministry of Knowledge Economy in an effort to merge the IT and shipbuilding industry, further enhancing research and development efforts (Dun & Bradstreet, n.d.).

Through this period, South Korea would offer tariff protection of up to 8% and several government subsidies, including the Local Tax Reduction for Building, Acquisition of International Line Vessels, and Deep Sea Fishing Vessels (Dun & Bradstreet, n.d.). The economic world crisis of 2008 brought additional stress to the Korean shipbuilding industry. In response, the government would implement the Shipbuilding Industry Restructuring and Competitiveness Reinforcement Plan (OECD, 2015). This ultimately led to seven shipbuilding companies being restructured and providing approximately the equivalent of \$8.2 billion in temporary cash flow, most of that funding going to small and medium shipyards (OECD, 2015). Following this, the government would implement the Plan to Develop Offshore Plant Industry in 2012 with the aim of investing approximately \$822 million into the private sector (OECD, 2015). Total budgeted investments in shipbuilding R&D reached approximately \$267 million in 2014 (OECD, 2015).

The peer review by OECD in 2015 revealed that nine of the 80 shipbuilding companies in South Korea were producers of large commercial vessels, while the other 71 were small and medium commercial vessel producers. As of 2011, OECD estimated the South Korean shipbuilding capacity to be 36 million GT a year, while the deliveries of cargo-carrying vessels in 2013 reached 23.7 million GT. As seen in Figure 8, South Korea remains a dominant player in the shipbuilding industry, producing just over 16 million GT or 29% of all sized vessels in 2022 (OECD, 2015).



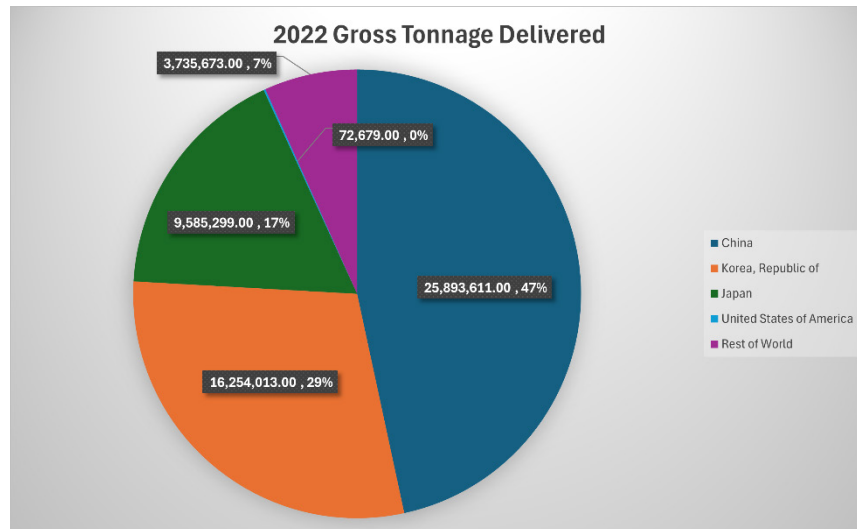


Figure 8. Adapted From UN Trade and Development (2023).

In the recent past, South Korean shipbuilding has struggled to remain profitable, with the three big shipbuilders Hyundai Heavy Industries, Daewoo Shipbuilding, and Marine Engineering, and Samsung Engineering reporting losses of approximately \$5.5 billion in 2015 (Pike, 2022). Government assistance over the next ten years would include the government purchase of 140 liquefied natural gas or liquefied natural gas-powered ships, investments in research and development, and approximately \$900 million for next-generation hydrogen carriers and operating systems for autonomous or unmanned ships (Pike, 2022). South Korea has invested heavily in eco-friendly vessels with the ultimate goal of capturing 75 percent of the market by 2030 (Pike, 2022). Following the niche strategy of the EU. In a recent blow to reorganization attempts of South Korea, in 2022, the EU blocked the two large shipbuilders, Daewoo Shipbuilding and Marine Engineering and Hyundai Heavy Industries, from merging in fear of a monopoly on the liquefied natural gas shipbuilding market (Pike, 2022).

2. Japan

Following the conclusion of WWII, the Japanese shipbuilding industry would be left in a vulnerable state. To aid in the recovery, Japan deregulated the industry and adopted liberal monetary policies (Dun & Bradstreet, n.d.). Low interest rates, lenient loan disbursements, and deferment of loans allowed influxes in capital. Similarly, the

government owned banks, the Export-Import Bank and Japan Development Bank provided tax benefits and financing which contributed to Japan's rapid growth from the 1950s through the 1970s (Dun & Bradstreet, n.d.). The 1970s and 80s would be a rollercoaster ride for the Japanese shipbuilding industry, catapulting them into the largest producer of commercial vessels globally, seeing considerable shrinkage, and momentarily regaining the position as the global leader (Dun & Bradstreet, n.d.). Figure 9 illustrates two recession periods in Japan's history that would be a catalyst for government intervention in the 1990s, 2000s, and today.

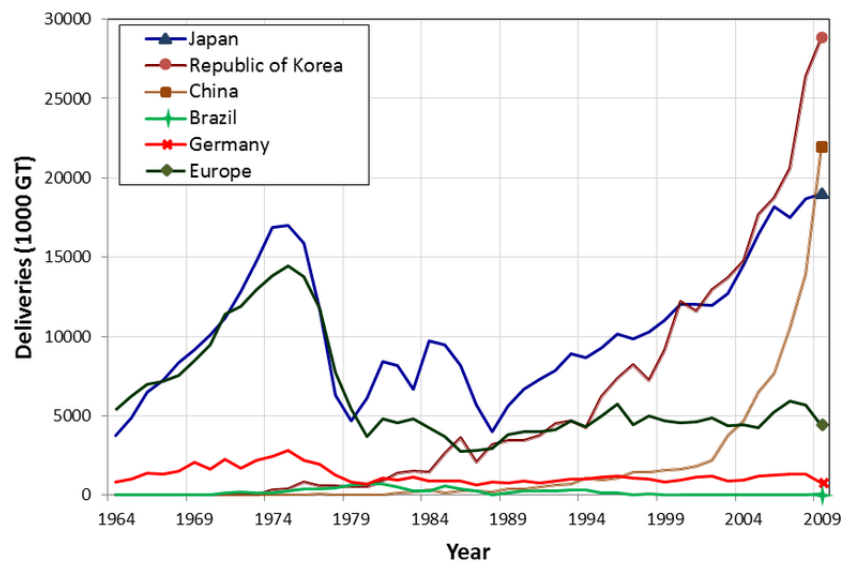


Figure 9. World Shipbuilding Deliveries (in 1000GT) by Countries from 1964 to 2009. Source: Wiess (n.d.)

The recessions in the 1970s and 80s led to lower domestic purchases of ships, creating large excess capacity in the shipbuilding industry. To counteract this excess capacity, Japan looked to the export market (Dun & Bradstreet, n.d.). Although Japan began taking orders from foreign countries, some manufacturers remained unprofitable. The government addressed the unprofitability by implementing export promotion policies like the link system (Dun & Bradstreet, n.d.). The link system transferred profits from the import of sugar to the unprofitable shipbuilding industry during the recessions (Dun &

Bradstreet, n.d.). The 1990s and early 2000s, as illustrated in Figure 9, would prove to be a time of great competition in the shipping industry for Japan. In response, the industry would shift focus to innovation and developing new technologies with the government's backing.

“The Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has responsibility for policies related to shipbuilding and wider maritime issues” (OECD, 2016, p. 17). In 2003, Japan developed a strategy that aimed to “maintain domestic building capacity of one-third of world market demand and establish technical capabilities to lead the world shipping and shipbuilding industries, by 2010” (OECD, 2016, p. 17). A subsequent update would see an additional focus on economies of scale, promoting research and development, and technology. In a larger effort to stimulate the shipbuilding industry, MLIT created a government-industry working group called the New Shipbuilding Policy Review Committee (OECD, 2016). This committee would be responsible for developing policies such as the four categories of support measures: export credits, export credit insurance, home credits, and research and development grants (OECD, 2016). Under the export credit assistance, in fiscal year 2010, the Japan Bank for International Cooperation reported shipping received nearly \$440 million worth of assistance (OECD, 2016). Similarly, research and development grants could be awarded for up to 33% of eligible costs. Figure 10 illustrates the amount of funds distributed from 2009–2011 in support of the shipbuilding industry under this effort. In 2011, approximately \$1.6 billion would be committed.



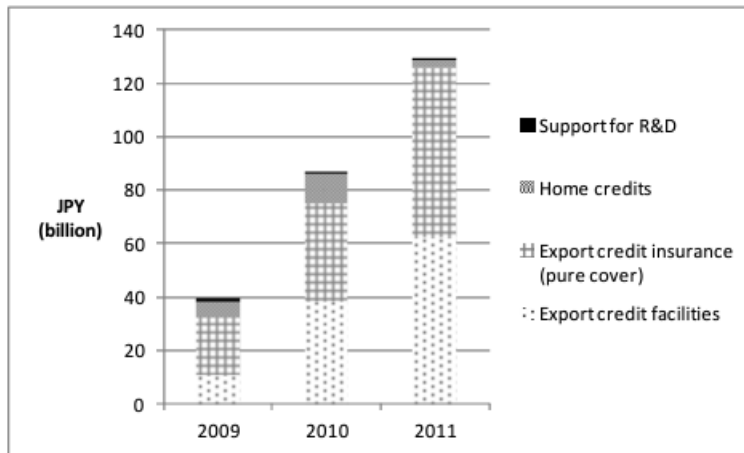


Figure 10. Japanese Government Assistance 2009–2011. Source: OECD (2016)

Today, Japan has an estimated 1000 active shipyards of various sizes, with the three largest being Imabari Shipbuilding, Tsuneishi Holdings, and Oshima Shipbuilding Company, which specializes in large commercial vessels (OECD, 2016; Shi, n.d.). In 2019, MLIT began an effort to consolidate the Japanese shipbuilding industry under the All-Japan Shipbuilding merger plan. In 2020, two large shipbuilders, Imabari Shipbuilding and Japan Marine United, began a merger to combine sales and design functions. MLIT’s ultimate goal is to integrate the 15 major shipbuilders to better compete against South Koreans and the now dominating Chinese shipbuilders, who have conducted similar consolidations within their respective industries (News Hound, 2020). Japan continues to be a significant player in the global shipbuilding industry, with continual investments in technology and shipyards abroad.

3. China

China’s meteoric rise to the dominant worldwide shipbuilder has been impressive and alarming for manufacturers worldwide. Since their inception into the World Trade Organization in 2001, China has taken several economic measures that would allow them to grow at an exponential rate (Lardy, 2001). According to a 2011 OECD report, China’s GDP grew on average 9.7% from 1978–2006 (OECD, 2011). This rapid growth in GDP

would run in parallel with the shipbuilding industry, as seen in Figure 11. Only 0.9% of vessels were delivered globally in 1985, skyrocketing to 47% in 2022 (OECD, 2011).

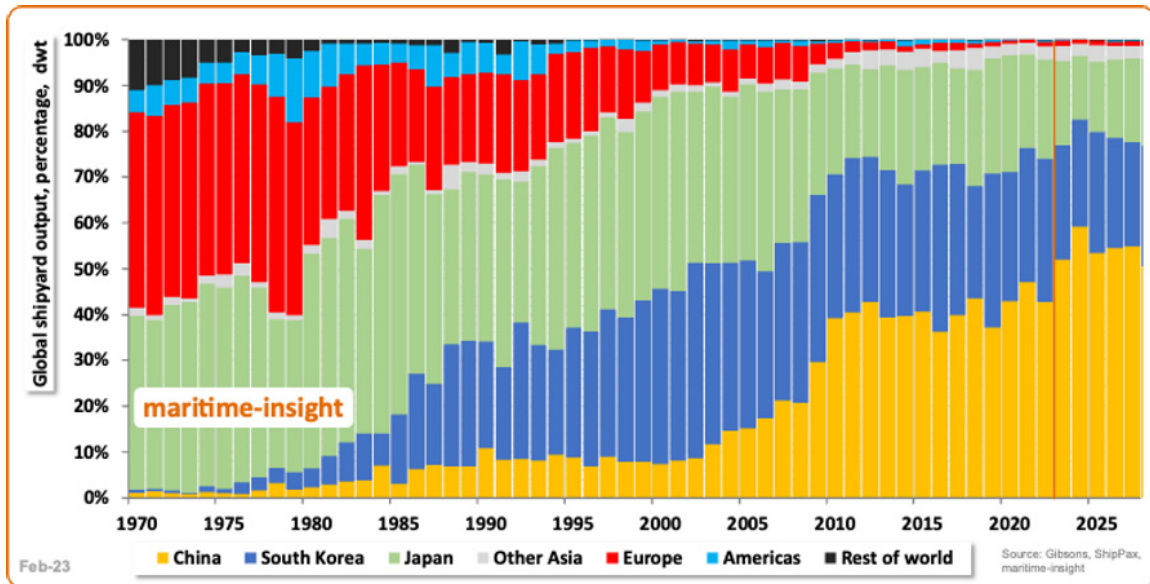


Figure 11. Global shipyard output percentage. Source: Maritime Data (2023)

This rapid growth in shipbuilding was part of a broader strategic vision to be self-sufficient in transporting seagoing trade globally while many nations rely on foreign shipping services (OECD, 2011). The primary policy and maritime authority Commission of Science, Technology and Industry for National Defense (COSTIND), now the Ministry of Industry and Information Technology (MIIT), started to drive growth in 2006 alongside the greater Chinese Belt and Road initiatives with the National Medium- and Long-term Plan (OECD, 2011). Similar to the South Korean and Japanese strategies, China would work to bolster not only its shipbuilding industry but also complementary industries to drive down costs throughout the supply chain. The 11th 5-year plan included,

the construction of three major modern shipyards. It is also upgrading existing shipbuilding facilities, encouraging industrial consolidation and promoting new private or joint-venture shipyards. The Plan also focuses on the requirement for advances in new ship design, and investment in quality management, resource and supply structures. (OECD, 2011)

Chinese government assistance transparency to the industry has sometimes been questioned. Most recently, the Biden-Harris administration and the Office of the United States Trade Representative have initiated an investigation into Chinese acts and policies that they believe to be predatory in nature (Office of the United States Trade Representative, 2024). Through Chinese government channels, they have reported that government assistance takes the form of export credits, research and development, and domestic market protection. The Export-Import Bank of China can provide up to 80% of the commercial contract value through export credits (OECD, 2011). As a protection mechanism, the Ministry of Finance has applied tariffs on imported ships ranging from 3–10% depending on the vessel (OECD, 2011). Additional measures include the Investment funding reform, which allows companies to raise capital through public issues or corporate bonds and stabilize material costs by sourcing 80% of the steel required for domestic shipbuilding (OECD, 2011).

In the 13th Five-Year Plan running from 2016–2020, shipbuilding priorities focused on the shipbuilding industry, marine engineering equipment, and high-tech vessels (OECD, 2021). This pivot to high-tech vessels would range from deep-water exploration and liquified natural gas-fueled ships to luxury cruise ships. The target goals of the plan were to “strengthen state-owned enterprise (SOE) cooperation, targets a domestic market share of 70% by 2020 for China’s biggest shipbuilding yards, and includes a target for Chinese high-tech ships of 34% to 40% of the global market by the same date.” (OECD, 2021, p. 29). Additional policies in the form of the Made in China 2025 plan aim to reduce Chinese dependence on foreign technology up and down the supply chain by 2025 (OECD, 2021).

The extent and amount of government assistance given to the Chinese shipbuilding industry over the previous 25 years is unrivaled. From 2006 to 2013, it is estimated that China subsidized the shipbuilding industry by approximately \$90 billion, contributing to China acquiring 40% additional global market share over that period (OECD, 2021). Similarly, alleged state support provided approximately \$82 billion from 2013–2016 to aid the Chinese state-owned China Ocean Shipping Company (OECD, 2021). Another form of aid is debt-equity swaps, where, for example, in 2017, eight investors provided \$3.27 billion in capital to China Shipbuilding Industry Corporation subsidiary companies for



shares of the parent company (OECD, 2021). The Chinese government offers myriad other assistance, including guarantees, tax incentives, vessel demolition subsidies, research and development funding, and numerous liberal monetary and financial policies.

E. REVIEW OF ECONOMIC THEORY ON SUBSIDIES

Subsidies across all industries are viewed as showing both positive and negative effects and have elicited varying reactions throughout international organizations. Subsidies are defined as “a transfer of resources from a government to a domestic entity without an equivalent contribution in return and can take many forms, including direct grants to domestic companies, tax incentives, or favorable terms for financing” (Van Heuvelen, 2023, para. 3). Subsidies also take the form of “direct government expenditures, tax incentives (such as tax credits or reduced tax rates), equity infusions, soft loans, government provision of goods and services and procurement on favorable terms, and price supports” (International Monetary Fund, Organization for Economic Co-operation and Development, The World Bank, and World Trade Organization [IMF, OECD, WBG, WTO], 2022, p. 6). The general consensus among the World Trade Organization, International Monetary Fund, World Bank, OECD, and others is that subsidies have several motivations and rationales that drive their implementation. Governments may be looking to address market failures in a particular industry, “achieve a national strategic objective or to gain a competitive edge” (Van Heuvelen, 2023, para. 4) in domestic or international markets. In some cases, subsidies lack clear economic rationale, driven primarily by lobbying or political pressure.

Economically, there are several positive reasons to implement subsidies, such as to drive an industry to innovate through research and development, promote environmentally friendly goods and services, and invest in small businesses that struggle with raising capital due to their size (International Monetary Fund, Organization for Economic Co-operation and Development, The World Bank, and World Trade Organization, 2022). Likewise, subsidies on widely consumed items can provide relief to lower-income households by lowering the cost of goods. The government’s role has been to assess and apply subsidies where they believe the subsidies would have the most impact on social welfare. Giving



subsidies to the manufacturer for raw materials, restricting exports of raw materials, providing coupons to consumers, or fixing prices and compensating manufacturers for their loss would be effective in providing a lower-cost item but could have varying impacts in the near term.

When subsidies are introduced without the presence of market failure or externalities, the potential for market distortion is created (International Monetary Fund, Organization for Economic Co-operation and Development, The World Bank, and World Trade Organization, 2022). Ideally, consumers will purchase the material at what they believe is the fair market value of the good or service, resulting in a balanced market. When the government introduces subsidies into a market, resources can be pulled from other sectors, driving down the cost of that good or service. When these goods or services are overproduced, this could lead to businesses leaving the market (International Monetary Fund, Organization for Economic Co-operation and Development, The World Bank, and World Trade Organization, 2022). Similarly, in a global market, the introduction of subsidies has the potential to elicit a retaliatory response from other nations in the form of interventions (Figure 12) and subsequent countervailing duties investigations (Figure 13). Transparency on subsidies levied by foreign governments is difficult to track. This puts tension on trade agreements and negotiations that may be in place (International Monetary Fund, Organization for Economic Co-operation and Development, The World Bank, and World Trade Organization [IMF, OECD, WBG, WTO], 2022).



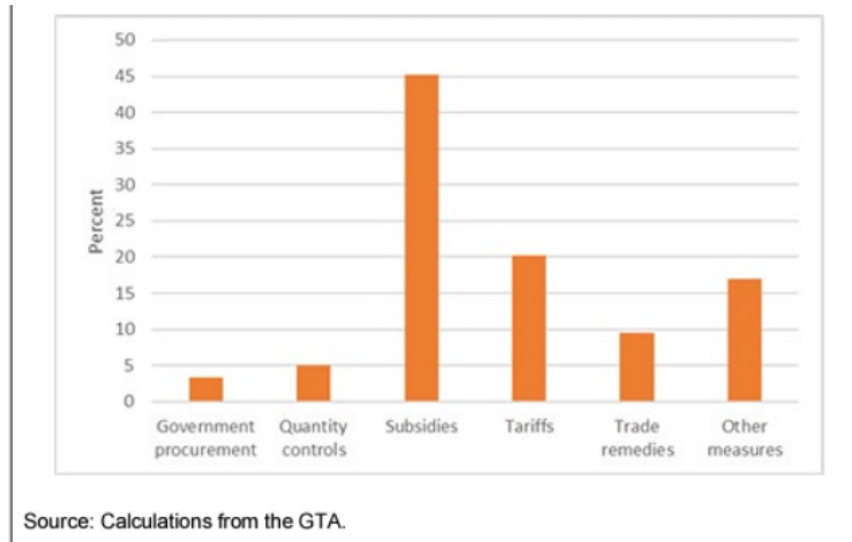


Figure 12. Interventions by Type of Measure 2009–21. Source: IMF, OECD, WBG, and WTO (2022).

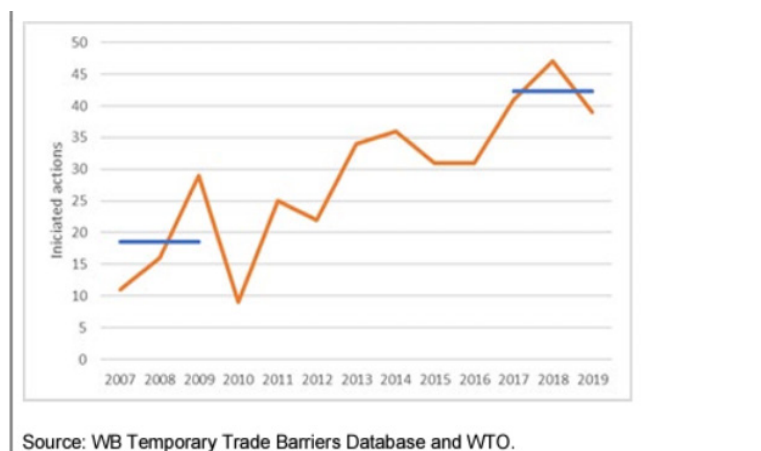


Figure 13. Initiated Countervailing Investigations Per Year, 2007–19. Source: IMF, OECD, WBG, and WTO (2022).

This competition of retaliatory subsidies has been in play in the shipbuilding industry for the past 80 years. The most effective use of subsidies by the United States guided the country from WWI through the 1970s, when President Nixon executed his reform of the Merchant Marine Act. In 1981, following the Vietnam War, all shipbuilding

construction subsidies were ended by President Reagan in an effort to remove the federal government from the public sector (MarineLink, n.d.). By 1998, an estimated 300,000 U.S. shipbuilding jobs were lost sector (MarineLink, n.d.). At the same time, Europe and Asia continued to invest in their shipbuilding industries by consistently increasing the amount of government assistance and expanding their market share, as seen in Figure 14.

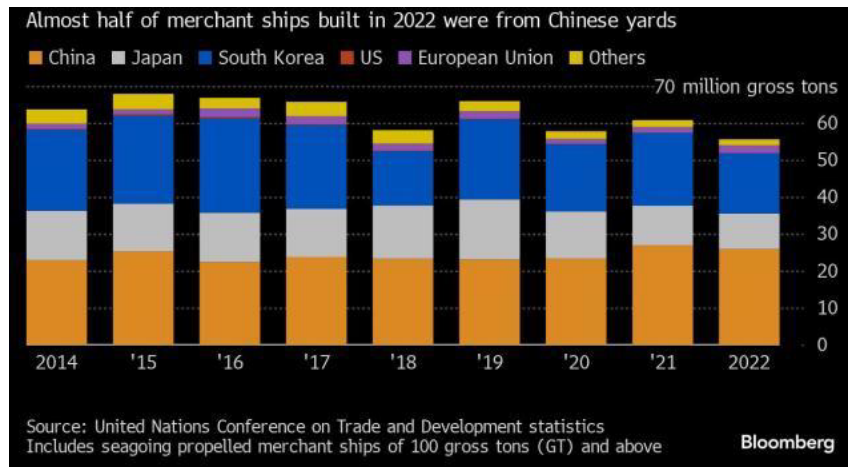


Figure 14. China Dominates Global Ship Building. Source: American Journal of Transportation (2024).

Recent developments have seen China invest in its shipbuilding industry by providing \$5 billion in direct subsidies and \$127 billion in state financing from 2010–2018 (Blanchette et al., 2020). Likewise, the Republic of Korea and Japan passed similar measures to remain competitive against growing Chinese dominance. In 2021, the Japanese parliament passed a revised law that would afford tax breaks, subsidies, low-interest loans, and financial assistance to local shipping companies that ordered locally-built ships (Chambers, 2021). Beginning in 2024, the Republic of Korea government, in conjunction with three major shipbuilders, will invest around \$6.7 billion over the next 5 years to modernize technology gaps (iMarine, 2024). Although the effectiveness of these subsidies could be debated, they, along with low-interest loans and tax breaks, have been critical to some countries’ ability to remain relevant and competitive on the global stage.

F. U.S. GOVERNMENT ASSESSMENT OF THE SHIPBUILDING INDUSTRY

Because of the Merchant Marine Act, the private and public shipbuilding industries will be forever intertwined in national security. As of 2021, there were 454 private shipyards in the United States (MARAD, 2021). Of those, 154 were engaged in shipbuilding, while the other 300 were involved in ship repair. In 2019, this accounted for the employment of 107,180 direct personnel and 276,100 indirect personnel. Of the 608 ships delivered in 2020, 14 of the 15 deep-draft ships delivered were to the U.S. government (MARAD, 2021). With only three shipyards in the United States with the ability to manufacture commercial cargo vessels, the country has become more and more reliant on Asian producers of commercial vessels (Frittelli, 2023). One of those three shipyards, the Philadelphia commercial yard, opted to build maritime training vessels for the federal government when it started becoming less profitable. The second shipyard, NASSCO, earns its primary source of income from the U.S. Navy. The third shipyard, commercial container vessel builder newcomer Keppel AmFELS, delivered its first two vessels in 2022 and 2023 (Frittelli, 2023).

The Congressional Research Service noted in its November 2023 report that some of the major hindrances to the construction of large oceangoing vessels in the United States had been the termination of the construction differential subsidy in the 1980s, the Jones Act's requirements for construction and operation, and the low cost of competitor ships (Frittelli, 2023). Because of these factors, purchases of U.S.-built ships by foreign countries have not occurred in decades. U.S. ships are often four times smaller than foreign-built ones and come at a higher overall cost. In non-contiguous areas of the United States and Florida, shippers import on foreign ships rather than source domestically to reduce the per-unit cargo cost (Frittelli, 2023).

With the private sector conducting over 78% of military shipbuilding and repairs, the importance of the private shipbuilding industrial base is further highlighted. GAO reports on naval shipyards and Navy readiness in 2022 and 2023 highlighted that in 2018, the U.S. Navy began a 20-year effort to modernize four public shipyards with an investment of \$21 billion (Maurer, 2022, 2023). Although three of the four shipyards have



seen significant improvements in modernization, the yards have also seen drastic cost increases. At the Pearl Harbor location alone, the estimated cost increased from \$6.1 billion in 2018 to \$16 billion in 2022, only \$5 billion short of the total cost estimated for all locations (Maurer, 2022). Driven by inflation and a lack of skilled labor, the cost of modernizing public yards has increased significantly since the beginning of the effort. More than half of the equipment in use at these public yards is past its expected service life, highlighting the need to invest additional funds.

Likewise, in the private sector, modernization is the key to the viability of the shipbuilding industry. Since 2008, MARAD has provided \$282.2 million to nearly 300 shipyards in the United States through the Small Shipyard Grant Program (DOT, 2022). Although this program provides significantly less funding than its U.S. Navy public shipyard strategy counterpart does and does not specifically apply to deep-draft ships, it does provide federal assistance to private shipbuilding companies to modernize their facilities. In MARAD's February 2020 report to Congress, it emphasized the fragility of the maritime workforce (DOT, 2020). With costs and credentialing requirements on the rise, there is a potential for the workforce to decline, leading to the mariners' inability to sustain operations over 6 months in a government surge during wartime. A similar Congressional Research Service report in July 2022 highlighted the challenges of maintaining a skilled workforce capable of building and maintaining vessels. With 78% of military shipbuilding and repair being conducted by the private sector, additional investments will be necessary to maintain a skilled maritime and shipbuilding workforce.

Laws and regulations play a vital role in the competitiveness of any industry on a global stage. Chapter III has shown that proactive government involvement and continual evolution in European and Asian laws and regulations have enabled them to remain leaders in the global shipbuilding environment. Chapter IV will analyze these laws and regulations in conjunction with the background of the ebb and flow of shipbuilding to determine what measures have been effective and a path forward for a new regulatory framework that will allow the U.S. shipbuilding industry to be successful in the global market.



IV. ANALYSIS AND FUTURE STATES

A. CABOTAGE

Less globally interconnected and self-sufficient following WWI, the U.S. passage of the Merchant Marine Act in 1920 would serve its purpose ensuring national security and the expansion of the shipbuilding industry through the 1940s and 1950s. Also known as the Jones Act, it has proven over time to be one of the most restrictive maritime laws in the world. The Jones Act intercoastal transportation restrictions, better known as cabotage, have played a significant role in elevating the cost of U.S.-flagged vessels as reported in a 2011 MARAD report, “the total average cost of operating a U.S.-flag vessel in foreign commerce was 2.7 times higher than the cost incurred by foreign-flag equivalents.” (MARAD, 2011, p. 1). The result of this increased cost is the heavy utilization of rail and freight trucks to transport material from coast to coast. “freight trucking costs that were not passed on to consumers were at least 6 times greater than rail costs and at least 9 times greater than waterways costs per million-ton miles of freight transport.” (Herr & White, 2011, p. 2). This increased cost in both the operation of Jones Act vessels and the use of freight trucking and rail has led to circumnavigating the laws. In 2014, “the price for moving crude oil from the Gulf Coast to the U.S. Northeast on Jones Act tankers is \$5 to \$6 per barrel while moving it to eastern Canada on foreign-flag tankers is \$2.” (Frittelli, 2014, p. 9).

Besides the increased operating cost of Jones Act ships, the impacts are felt elsewhere, specifically in the noncontiguous U.S. locations of Alaska, Hawaii, and Puerto Rico. The highly restrictive nature of the cabotage rules often leads to these states and Puerto Rico looking outside the U.S. for commodities such as fuel to reduce the cost. In 2002, the U.S. International Trade Commission estimated that these three locations would realize an economic gain between \$5 billion and \$15 billion if the Jones Act were repealed (Rodriguez, 2017). This equates to approximately \$8.5 billion to \$25.5 billion in 2023 because of shipping network optimization. To put this into perspective, Alaska’s all-time high GDP in 2023 was \$67 billion (U.S. Bureau of Economic Analysis, n.d.).



As previously discussed in Chapter III, the EU has adopted an entirely different model of cabotage after many iterations of maritime law. Under Council Regulation (EC) no 3577/92, the EU eased its restrictions on cabotage. This council regulation allowed for intercoastal transport of goods and services to all member states within the EU. In a 2017 United Nations Conference on Trade and Development study, it was noted that over time it has been increasingly difficult to gather data regarding the collective cabotage (Rodriguez, 2017, p. 29). That being said, the premise behind the collective cabotage laws has been to regulate access in a similar fashion as the U.S. Jones Act, promote fairness between the member states, and open markets across the EU. When combined with additional measures such as linkages to international trade transport, it “can contribute, through feeder operations, to generate cargo volumes and thus reduce trade cost” (Rodriguez, 2017, p. 29).

Now more globally connected than ever, future state regulations in the U.S. could take form mirroring the EU’s more liberal cabotage laws. The U.S. has increasingly shifted from trading with China in favor of promoting trade within the North and South American countries and with allied partners. Allowing an expansion of cabotage regulations to Canada, Mexico, Japan, and Australia for example could help the shipbuilding industry by driving down operating costs, increasing domestic competition, and increasing efficiency. This would require a modification to the Jones Act as it sits in its current form, a new law, or the use of experimental legislation as will be discussed in section B of the chapter.

B. SUNSET CLAUSES AND EXPERIMENTAL LEGISLATION

While the use of sunset clauses and experimental legislation is not always appropriate, an argument could be made that in the case of shipbuilding and vessel operations, there could be utility in incorporating a sunset clause into laws or developing experimental legislation that temporarily deviates from existing laws. When properly implemented and administered, each has the capability to improve the legislative process as well as the industry it is administered.

The premise behind sunset clauses within a law is that, once the specified date that is pre-established is reached, the law is no longer in effect unless acted upon and extended.



This allows the lawmakers to evaluate the effectiveness of the law, revise, or allow it to expire if necessary. “Sunset clauses emerged in their current ‘format’ in the United States in the 1970s as a reaction to the uncontrolled growth of agencies and their powers, excessive bureaucracy and public spending.” (Ranchordás, 2014, p. 31). Sunset clauses would be seen in the development of the Patriot Act and the COVID-19 Bill. Because of the rapidly changing environment in both of these cases, reviewing and revising, if necessary, allows lawmakers to make adjustments to meet the societal needs at the current time. Critics of sunset clauses such as the Mandelkern Group have argued: “clauses would increase uncertainty and thus have an adverse effect on the investment climate and on individuals’ confidence in the protection afforded them by regulation” (Mandelkern Group, 2011, p. 18). One of the defining principles of sunset clauses is that they are implemented as a tool to flush out ineffectiveness and uncertainty, not create more. Implementing sunset clauses on a new law in the shipbuilding industry, such as the expansion of cabotage as discussed in Section A of this chapter, would allow lawmakers to refresh a 104-year-old law, gather data on effectiveness over a period of time, and make an informed and educated decision on either re-enacting the new law because it was successful or allowing it to expire to work another avenue. The EU implemented this strategy within their shipbuilding industry leading to numerous revisions of laws to keep up with a changing global market and ultimately leading to the EU pivoting into their strength of complex shipbuilding.

Experimental legislation is defined as “laws or, more commonly, regulations (secondary legislation) which introduce rules in deviation of existing law for a fixed period, for a limited group of citizens or territory and which are subject to a periodic or final evaluation.” (Ranchordás, 2014, p. 33). Similar to sunset clauses, experimental legislation has a set timeframe to allow for data collection and measuring the overall effectiveness of the legislation. This type of legislation has been used in the past and has led to long-term revisions. One such law was the Social Security Act of 1935. Originally developed to provide a temporary safety net for the elderly, unemployed, and disadvantaged during the New Deal, several iterations later, Social Security is now permanently written into law (Social Security Administration, n.d.). Similar to how experiments are used to develop new



technologies, this tool is used in law to gain knowledge of an unknown in society or an economic area.

Our current laws restricting the shipbuilding industry are dated; in 104 years, there have been just three revisions, the most recent of which occurred in 1970. In 54 years, the landscape of global economics and competition has changed drastically. To become competitive in the global market, the U.S. cannot afford to wait 54 years to update laws. One would assume that in the future, laws will be implemented to aid the shipbuilding industry. In this case, attaching sunset clauses with proper implementation and administration will ensure that if for example the cabotage expansion is implemented, at the conclusion of the sunset clause, lawmakers will be able to accurately assess the effectiveness of the law. Similarly, if passing a new law becomes too burdensome, utilizing experimental legislation could enable lawmakers the ability to gather data in a similar manner and determine the most effective areas to apply government assistance and regulations.

C. OECD AGREEMENT

Chapter III included a discussion of the 1996 attempt to ratify the Organization for Economic Co-operation and Development shipbuilding agreement. Ultimately, the goal of the agreement was to enhance the competitive conditions between the OECD nations. One of the major supporters of the agreement, the U.S. was the only country to not ratify the agreement. This reluctance to ratify the measure caused the agreement to not be entered into force. The initial discussion can be traced back to the Shipbuilders Council of America which questioned subsidy practices in major shipbuilding countries of South Korea, Japan, Germany, and Norway. Through the Office of the U.S. Trade Representatives, the Shipbuilders Council of America voiced their opposition of subsidy use to OECD, driving trade negotiations in which the agreement took form in 1994 (Congressional Research Service, 1998).

With the construction differential subsidy expired, the U.S. shipbuilding industry was at a great disadvantage compared to its counterparts. With most of the shipbuilding nations providing subsidies to shipbuilders, the OECD agreement would allow the U.S. to



be on a level playing field. An investigation by the U.S. Trade Representative found that this agreement would amend the following U.S. programs:

- (1) the current duty levied on repairs of U.S.-flag vessels in a foreign shipyard;
- (2) tax deferral on deposits by U.S. operators into funds for construction of U.S.-built ships; and
- (3) cargo preference programs that favor U.S.-built ships. Proposed legislation would give the same treatment to ships built in any of the signatory countries. (Congressional Research Service, 1998, p. 4)

These amendments would require an end to U.S. Title XI loan guarantee subsidies which were found within the Merchant Marine Act of 1936 (Congressional Research Service, 1998). This end to the Title XI loan guarantees would be the sticking point between U.S. shipbuilding companies and Congress.

Through much of the Cold War with the Soviet Union, the U.S. shipbuilders saw heavy military ship orders in conjunction with an adequate amount of commercial vessel deliveries. Leading into the close of the Cold War, the number of large shipbuilders hit a leveling point at approximately ten as seen in Figure 4. Coinciding with this reduction of large shipbuilders, the end of the CDS and the beginning of the U.S. military downsizing would be reflected in the 50% reduction in U.S. Navy ships being procured from 1992–1997 and only eight U.S. commercial ships over 1,000 tons being sold (Klein, 2015). The effects of terminating the CDS in 1981 were immediately felt.

Once the proponents of the OECD agreement, the large shipyards turned on the idea of amending the Title XI program stating, “The large shipyards oppose any change to the Title XI program because they say that the program is the reason U.S. shipyards are again building large commercial vessels.” (Congressional Research Service, 1998, p. 5). The primary argument against the amendments came in the form of the impact on the Jones Act ships and military reserve ships. If this agreement were to be ratified, it would loosen the grip of the Jones Act on restricting where the ships were built and with what material, opening the market to the nations that would ratify it.



Examining retrospectively, it could be easy to argue either side of the ratification, the national security of the nation vs. the economic output of the shipbuilders on the international market. However, the U.S. commercial shipbuilding industry since the 1980s has failed to rebound and be competitive on the international market leading to a continuously decreasing pool of major shipbuilders and military reserve vessels. Shipyards have focused on military and small vessels under 1,000 gross tons with very minimal commercial vessels over 1,000 gross tons being delivered. Although the OECD agreement, now known as the OECD Council Working Party on Shipbuilding, has not been fully ratified, the OECD Council Working Party on Shipbuilding continues to set policy and level the playing field for those under its current umbrella.

The commercial shipbuilding industry is a matter of national security, and the economic output is the means to keep the industry solvent. Ratifying the OECD agreement would loosen the restrictions of the 104-year-old Jones Act and allow for a more level playing field through transparency in government assistance given to foreign shipbuilders. Although other nations may never end their subsidies of concern for their national security, this gives the U.S. a forum for opening discussions and facilitating disputes. Most importantly, this agreement would integrate the U.S. into the largest shipbuilding partnership in the world, giving OECD nations the ability to compete with the highly subsidized Chinese shipbuilding industry.

D. REPEAL THE MERCHANT MARINE ACT

The commercial shipbuilding industry has been more or less eroded to the point that in the event of a major conflict between the U.S. and an adversary, we would not have the capability or the capacity to surge the manufacturing of both shipping and Navy vessels to meet the demand. WWII required 8,812 vessels to sustain the war effort over 7 years. As of September 2023, China had 232 times the manufacturing capacity of the U.S. at 23,250,000 tons, while the U.S. measured only 100,000 tons (Adams, 2023). The Merchant Marine Act, namely the Jones Act, was responsible for driving the U.S. shipbuilding economy and protecting national security through two world wars. Revisions have been made on two occasions in 1936 and 1970 in an effort to salvage what capacity was left.



Unfortunately, government and independent report after report has presented the reality of an industry negatively impacted by the law.

Chapter III discussed several options for the Jones Act ranging from a full repeal to amending some of the articles. Valid arguments have been presented for the repeal however, strong opposition has prevented changes to move forward. Speculations from the OECD in 2019, estimated that the benefits of repealing the Jones Act would require the U.S. to lower the costs of vessels by 50% leading to a possible increase in demand for U.S. ships of up to 60%-80% (Gourdon & Guilhoto 2019). This would also decrease the cost of freight transport by approximately 50% and as a result, see a domestic value add of approximately \$19-\$64 billion (Gourdon & Guilhoto 2019). This increase in activity could have cascading effects on trickledown economics allowing other industries to expand with the shipbuilding industry. However, there is a possibility that repealing the Jones Act could push small inefficient yards out of the market, create a merchant marine shortage, and expand the risk of losing critical domestic infrastructure to foreign nations. Because repealing the Jones Act is a venture into the unknown, the possibility of near-term negative effects could be felt and would need to be addressed through quick and flexible legislation.

Although the details of writing new laws to replace the Jones Act are not within the scope of this capstone, it has shown the importance of the Jones Act prior to the globalization of the economy and the subsequent impacts on the industry over the past 79 years. If no modifications to the Jones Act can be made as recommended in the previous sections of this chapter, it is suggested that it be replaced to pave the way for a modern approach that meets the needs of a global economy. The U.S. laws must level the playing field for domestic builders against their foreign counterparts. Provisions to maintain national security should be incorporated to ensure the U.S. has a sufficient military reserve fleet and the capacity to surge if required without limiting the economic output of the shipyards.



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V. CONCLUSION

A. SUMMARY

This capstone sought to answer the research questions of: What impact have government laws and regulations had on the U.S. shipbuilding industry? What potential frameworks for new government laws and regulations could help reinvigorate U.S. shipbuilding to compete with other countries? Through the development of a comprehensive background and a thorough literature review, four areas were identified that could be implemented to improve the declining U.S. shipbuilding industry: expansion of cabotage to major trade partners, use of sunset clauses and experimental legislation, ratification of the 1994 OECD shipbuilding agreement, and the repeal of the Jones Act.

The expansion of cabotage regulations to major trading partners and allied nations in the West would drive down operating costs, increase competition, and increase the efficiency of U.S. operators and builders. Lawmakers could increase the flexibility of the legislative process through the use of sunset clauses and experimental legislation. This gives lawmakers data to accurately assess the law's effectiveness and determine whether to revise or allow it to expire. Ratification of the 1994 OECD shipbuilding agreement would drive modifications to the Merchant Marine Act of 1936 and integrate the U.S. shipbuilding industry into the largest shipbuilding partnership in the world. It would lead to greater legislative transparency and unification of the 37 nations within the OECD. Finally, repealing the Jones Act would end the more than 50 years of antiquated shipbuilding law and promote a modern lawmaking approach, allowing the U.S. to compete in a global market.

B. CONCLUSION

The global shipbuilding industry is an exceeding complex national security and economic environment. Following WWI, the preliminary U.S. steps resulted in one of the first and most successful executions of a maritime stimulus and national security law with the Merchant Marine Act. At the conclusion of WWII and into the 1970s, the U.S. failed to adequately reassess and amend the Merchant Marine Act to ensure global competition.



At the 21st Acquisition Research Program Symposium, the Assistant Secretary of the Navy for Research, Development, and Acquisition, the Honorable Nickola Guertin (2024) stated:

In the 1970s and 80s, we as a country decided to abandon commercial shipbuilding, by not having peer-level incentives, tax breaks, those kinds of things as our other shipbuilding nations. Let the free-market figure it out. Well, the free market didn't figure it out because it wasn't really a free market ... We lost our commercial shipbuilding industry ... What do we have to do? Unfortunately, there are some things Congress has to do ... We need more shipyards, we need change in law, and we need to go toe to toe with other countries that are not using an invisible hand to let the market figure it out. (56:30)

Today we do not have the capacity to compete with other nations on the international shipbuilding market. Attempts have been made to reform or replace the current laws but have met stiff resistance allowing it to remain. Continuing the status quo for over 100 years has shown the Jones Act lacks the flexibility to ensure the solvency of the industry and the results have been seen not only in the commercial sector but in the readiness of the ready reserve fleet and the Navy. As Assistant Secretary Guertin stated, we need more shipyards, and we need a change in law. This is the path forward for the U.S. commercial shipbuilding industry.

C. FUTURE RESEARCH

Because of the breadth of this subject, several potential further areas of research presented themselves. Suggestions for further research:

- Trickle-down economics of the shipbuilding industry to other industries.
- Workforce and immigration policies that could remedy aging and vacant skilled labor in shipbuilding.
- Effects of flags of convenience on shipbuilding and freight transportation.
- U.S. funded shipbuilding research and development effectiveness.
- Banking and lease effects on the industry.
- Political, union, and shipyard association's motives for not repealing the Jones Act.



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