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The Significance of Global Value Chains in Shaping China's Maritime Power

Anne-Marie Dedene

Structured Abstract

Article Type: Research Paper

Purpose—To highlight new aspects of the economic dimension of maritime power through an analysis of China's maritime economy development based on Global Value Chains Theory.
Design, Methodology, Approach—A discourse analysis of *Qiushi* and *Renmin Ribao* articles to identify elite signals on the role of China's maritime economy within its maritime power build-up was combined with a qualitative, deductive thematic analysis of Chinese policy documents. Additionally, descriptive statistical analyses based on data retrieved from the Orbis and UNCTAD databases and the China Marine Statistical Yearbooks were used.
Findings—The Chinese government has been actively signaling the importance of global value chains for the PRC's maritime economy and has accordingly designed policy measures targeted at upgrading those global value chains. Quantitative data illustrates that, though the PRC's maritime economy has grown, there is no proof of a completed upgrading process within its maritime economy.
Practical Implications—Understanding how industrial upgrading enhances a state's maritime power by accumulating resources and securing a central position in maritime production networks can provide policymakers with insights to strategically leverage these dynamics for national economic and security interests.
Originality—This analysis of China's maritime economy policies demonstrates the applicability and value of the Global Value Chain theory to empirically research maritime power.

Keywords: China; economic upgrading;
global value chains; maritime power

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I. Introduction

Maritime power is becoming an increasingly important aspect of national power. States are therefore steadily and increasingly moving towards the pursuit of maritime power to help advance their national interests.[1] One aspect of this pursuit of maritime power is the exponential growth in states' attention to economic actions linked to the sea: the maritime economy.[2] About 90% of traded goods are transported by ocean shipping.[3] Considering the increased importance of seaborne trade to a nation's creation of wealth, it comes as no surprise that states increasingly reflect on how control of the oceans can serve strategic goals, especially as ocean trade volumes have rapidly increased from the 18th century onwards.[4] At the same time, academic attention on maritime power has equally grown. An increasing number of studies focus on the increase of Chinese influence in the maritime economic domain, for example by examining its investments in overseas ports as well as its maritime shipping policies.5 Though these studies are very valuable as empirical case-studies, the authors refrain from reflecting on what China's maritime economic development means for the evolution of the concept of maritime power. This paper therefore aims to conceptually explore this lacuna, by proposing the Global Value Chain (GVC) theory as a valuable tool to understand maritime power in the economic domain for both scholars and practitioners. It takes 2013 as its starting point, as one of the collective study sessions of the eighteenth Politburo of the CCP Central Committee on July 30 that year focused on "Maritime Strategy and Building China as a Maritime Power," indicating the national priority given to the topic. This paper first gives a brief overview of existing literature on maritime power, while arguing the importance of the economic aspect of maritime power. Secondly, it offers an explanation of GVC theory and the role of the state in global value chains. Then, the chosen data and methods are reviewed. Finally, the paper discusses China's pursuit of maritime economic power in three regards: discourse, policy and progress, and reflects on what the Chinese case can add to the contemporary understanding of maritime power in the economic domain.

II. Maritime Power in the Economic Domain

The literature on maritime power can be categorized in several different manners. First, there is the semantic debate on the terms "sea power" and "maritime power." Since the introduction of the term "sea power" in the global lexicon, the exact definitions of both "maritime power" and "sea power" have been blurred, hence the two terms are often applied interchangeably.[6] Whereas most scholars do not make a distinction between the two terms, some see sea power as a military concept and maritime power as a broader concept encompassing several domains.[7] Secondly, there is a distinction between the potential and consequential (how much power a state develops versus what the impact of this power is) view on maritime power, with some scholars looking at maritime power through both lenses.[8] Till (2018) for example, argues that sea power has both an input and an output side. The input side includes navies, coast guards and marine industries, whereas the output refers to the influence these maritime activities have on the behavior of other people or things. Likewise, Tangredi (2004) defines the concept as "the combination of a nation-state's capacity for international maritime commerce and utilization of oceanic resources, with its ability to project military power into the sea, for the purpose of sea and area control over commerce and conflict, and from the sea, in order to influence events on land by means of naval forces."[9] Finally, of those scholars discussing maritime power as an input, some focus on the identification of elements that strengthen maritime power, while others

focus on a (qualitative or quantitative) evaluation of maritime power.[10] This paper utilizes maritime power throughout to refer to this broader concept, and naval power when referring to the military domain. Viewing maritime power in both a consequential and potential manner, it adopts the definition of maritime power as "military, political, and economic power or influence exerted through an ability to use the sea."[11]

Despite these divisions in the literature on maritime power, definitions of maritime power commonly include multiple elements, such as the military, politics, the economy and technology.[12] Importantly, as these elements are not isolated from each other, change in one of these domains invokes changes in others.[13] One commonly recurring element is the linkage between maritime power and the economic domain.[14] This linkage is not a novelty, as European expansion in the maritime space from the 1500s onwards was already centered on the close-knit relationship between the military and economic aspects of maritime power. More maritime power usually allows a nation to not only obtain more benefits from the sea, but to promote its maritime trade as well. In return, both can aid the economy of the state in question, and provide resources that may then be employed to strengthen naval capacities and technological developments.[15] Maritime power could thus be seen as a facilitator of trade while, vice-versa, the pursuit of trade can be seen as a motivating factor for the development of maritime power.[16] This is reflected in early-20th-century sea power scholar Alfred Thayer Mahan's work, which states that "not only the military strength afloat, that rules the sea or any part of it by force of arms, but also the peaceful commerce and shipping from which alone a military fleet naturally and healthfully springs, and on which it securely rests" was important for sea power development.[17] He was not alone in making this argument, as the complex interrelationship between nations and their merchant fleet came to play a key role in the literature on maritime strategic thought.[18]

In the highly globalized trading system of the twenty-first century, in which some of the most productive and consumptive economies in the world are highly dependent on maritime supply routes and trade, the economic side of maritime power remains relevant as ever.[19] Yet it is no longer only based on a nation's merchant fleet and shipbuilding capacity. Elements that strengthen economic maritime power are dynamic and continually evolve because of advances in information technology, digitalization and globalization.[20] This is what the global value chain theory as a theoretical lens adds to the debate. It argues that maritime power is not just based on trade, but also on what enables this trade to run smoothly: a strong maritime economy, and all of its inputs. Maritime power thus not only depends on connectivity and trade, but also on a state's position within global value chains in the maritime domain. Being overly dependent on another state, in just one link of a value chain, can diminish a state's maritime power vis- a-vis this other state. Looking at maritime power in the economic domain through the lens of global value chains allows policy makers to identify and pay attention to elements of maritime power that may otherwise be overlooked. For example, though shipbuilding is presently an important and strategic sector, virtual maritime economic power could in the future have equally growing security implications. This for instance, in the shape of the advanced software that shipping companies rely on to track the position of ships and containers and, hence, allows for the just-in-time-deliveries that propel modern supply chains. Likewise, the relevance of maritime insurance as a contributing element to maritime power in the economic domain has been illustrated by international conflicts such as the Russian war on Ukraine of 2022. Legal issues

might for example arise regarding to what extent a ship trapped in the Black Sea can make insurance claims, and under which kind of insurance these claims should be made. In this way, insurance issues added to the logjam congestions of the maritime shipping industry and ultimately had severe economic consequences.[21] The relevance of the GVC theory to the concept of maritime power, will be further demonstrated through a case study of how the PRC develops its maritime economy to heighten maritime power in the economic domain.

III. The State and Global Value Chains

The idea of imperfect global trade, where one country gains more from the trade than another, is not a novelty. "Throughout history each successive hegemonic power has organized economic space in terms of its own interests and purposes."[22] Free trade has often been supported by those states that stand to gain the most from the openness of the global system.[23] Take, for example, Great Britain. During the Pax Britannica period, it became the industrial and financial heart of a highly interdependent international economy by exchanging manufactured goods for other nations' food and natural resources. Hence, the historical pattern of international exchanges echoes the global balance of economic and military power.[24] Though states can strive for the ideal of free trade, they are obliged to protect their citizens' interests and ensure that partnerships within this free trade system benefit national interests. A zero-sum view on international economic exchanges, which historically took the form of economic nationalism and protectionism and upheld the idea that states have to avoid trade deficits at any cost, has re-emerged in the 21st century.[25] The rapidly changing nature of the global economy, with growing interdependence due to globalization, has heightened the importance of economics in international relations.[26] Despite the advantages brought by globalization, however, the global system has not changed. It is still a highly competitive and anarchic arena based on power politics.[27] As economic competition and confrontation return to the forefront of great power rivalry, economic power once again gains importance "in determining the primacy or subordination of states."[28]

What has changed, however, is the context in which economic power is built up, as itis nowadays characterized by the rise of global value chains (GVCs) that connect companies, producers, employees, and consumers globally.[29] Conventionally, foreign trade was horizontally based, with states specializing in producing specific goods or services entirely within their own country and then exporting them. With the strengthening of economic globalization, trade can now be seen as a highly complex trade structure in which aspects of the global value chain are carried out across multiple countries.[30] These aspects consist of value-adding activities conducted by firms during the progress of a product from concept to creation. There are six categories: research, design, manufacturing, distribution, marketing and sales, and services.[31] There are two types of GVCs to distinguish: vertical specialization value chains (VSVCs) and additive value chains (AVCs). While the distinction between the two is not always watertight, VSVCs generally refer to the creation of goods manufactured using various subcomponents and services. AVCs, in comparison, tend to characterize the commodity sectors. Their production process consists of a combination of segments that sequentially add value.[32] Involvement in GVCs, both AVCs and VSVCs, is a vital condition for development for many states, as it allows them to capture economic gains and build productive capacity without having to host a fully integrated chain.[33] Firms can, for example, join the value chain as an upstream supplier of inputs materials to other firms or as a downstream producer by utilizing inputs from

other firms in their production and sales, respectively referred to as forward and backward linkages. These linkages allow for more significant economies of scale and the more optimal use of cross-border complementarities, thus leading to productivity gains for GVC-participating firms.[34]

However, relationships within GVCs are rarely symmetric. GVCs typically can be divided into lead firms and suppliers. The first focuses on product design and brand development, marketing, etc., while the latter focuses on manufacturing and selling products. The logic of GVCs is that lead firms will reserve those activities where entry barriers and profits are the highest, by controlling the key dimensions of the value chain, they capture the most significant share of the gains. Meanwhile, suppliers operate on thin profit margins and consequently have little revenue to invest in upgrading capabilities. In a world increasingly based on dependencies, lead firms are keen to keep this asymmetrical relationship going.[35] Due to their dominance in the GVC, these firms control who can participate in the chains in which part of the process.[36] Translating this to the state level, developed states with more advanced economies often conduct high-value activities in GVCs, such as R&D and marketing, and subsequently trade high- value-added goods and services for low-value-goods and services from lesser developed states.[37] Additionally, as companies from a growing amount of states aim to connect to the global market, competition to join GVCs has become increasingly intense.[38] Thus, even though participating in GVCs lets developing states capture productivity gains in the global market, some states may, in the long run, experience a slowing down of these gains, also known as the middle-income trap.[39] They become essentially trapped in a particular part of the GVC.[40] This asymmetric interdependence could prove risky if, for example, disruptions to GVCs or asymmetric vulnerabilities were to be deployed as strategic leverage.[41] Furthermore, whereas in normal circumstances, states will focus on the absolute gains from a GVC, these asymmetries in times of tension cause political leaders to resort to zero-sum thinking.[42] When a state's key industries depend more on a rival within a shared GVC, these leaders are more prone to conflict escalation.[43]

Unsurprisingly, economic actors increasingly reflect on mitigating these dependencies and successfully moving from low-value to relatively high-value activities or "upgrade" within GVCs. There are several types of upgrading: product upgrading by venturing into production lines with a higher value per unit, process upgrading that optimizes the efficiency of a production line through reorganization or better technology, functional upgrading by attaining a superior function in a GVC and thus increasing the skill content within the GVC and finally, intersectoral (or chain) upgrading, through which one uses skills acquired in a particular GVC to move into another chain.[44] Successful upgrading should include all these different types.[45] However, it must be said that upgrading does not necessarily lead to a better position in the value chain or more value capture, nor is the upgrading trajectory the same for every sector.[46] Furthermore, the ideal trajectory also depends on the type of GVC. For VSVCs, what matters is how lead firms, platform companies, and suppliers are balanced regarding value-added potential and profitability.[47] In order to upgrade, companies need to focus on a niche activity within the GVC, referred to as "thinning," to gain a globally competitive advantage. Only after that can they start "stretching" to higher-rent niches.[48] As value is added sequentially in each stage in the process of natural resources to higher-value intermediate goods within AVCs, it is important how much value-adding occurs in which location.[49] To heighten the domestic value added in a sector, upgrading in AVCs accordingly involves building linkages across a particular

sector, referred to as "thickening."[50] Although lead firms may support product and process upgrading of their suppliers, functional upgrading is often more contested, as this form of upgrading might affect the lead firm's core competitiveness.[51] This is where the state comes into play. Though GVCs are recognized to be linkages between firms, there now exists the understanding that these GVCs "do not operate in an institutional vacuum."[52] Hence, development as a result of GVC participation is partly shaped by the institutional context of a state and the role it takes on in GVC participation.[53] Whereas early state behavior in GVC theory was rather passive and focused on promoting an attractive environment for global firms to conduct business in, recent academic literature increasingly suggests a more interventionist role of states with regard to GVCs.[54] Yet, this new approach is not the same as previous industrialization policies, in which the state aimed to build complete domestic supply chains.[55] Instead, states can play a role in GVC upgrading both by supporting domestic firms in being a supplier within GVCs controlled by global lead firms, or by aiding domestic companies to become lead firms themselves.[56] To do this, they should yield a comprehensive and aligned strategy. It should strategically connect value chains on the domestic, regional and global scale, to reduce dependencies and upgrade value capture, and should involve both manufacturing industries, commodity production and procession of primary resources.[57] State policies thus have to include both policies aimed at GVC entrance and at upgrading to higher knowledge-intensive stages of the GVC to grow in VSVCs. In addition, policies aimed at capturing value-capturing activities by focusing on backward, forward and horizontal linkages aimed to improve domestic firms' standing in AVCs are also necessary.[58] This approach will be analyzed in this paper by a combined focus on six domains on which the state can focus in order to upgrade and four roles that the state can adopt in these domains.

Ravenhill (2014) proposed three areas of particular importance for a state that strives to upgrade: education, infrastructure, and industry-specific institutes.[59] It is not enough to extensively develop one category. Providing infrastructure to ramp up the scale of production of suppliers in GVCs, for example would do little to heighten the upgrading capabilities of one's own firms. Another example, heavily protecting a domestic firm, will not necessarily be successful if there are no supportive institutions that nurture it to upgrade, as this means that the domestic firm would remain too dependent on imported technology and capabilities. Building a strong local brand and the associated supply infrastructure cluster, may in contrast generate upgrading and thus gains.[60] Gereffi and Stark similarly argue that a country's competitiveness in GVCs is affected by its productive capacity (which includes human capital), infrastructure and services, and its business environment.[61] More broadly, Bamber and Fernandez-stark (2019) mention six policy domains that are essential to upgrade, which will be utilized for this paper's analytical framework: human capital, standards, investment strategies, local firm development, trade and infrastructure.

Stage-specific human capital requirements exist at every level of the GVC. Low-value segments depend on skill-specific training for "unskilled" entry-level workers. Similarly, mid-value chain workers require more specific technical and vocational training. The highest value chain segments require workers to acquire specific skills through tertiary education.[62] Second, standard compliance has become a prerequisite for participation in GVCs serving markets with increasingly strict standards. State policies could thus help domestic firms meet these requirements.[63] Third, investment strategies tailored to specific industries and stages in the

GVCs can help attract foreign investment. Foreign investment alone does not necessarily result in backward linkages, however, so additional policies are needed. Developing local firms is a fourth domain, and can be done by aiding firms in meeting cost and scale requirements by lead firms, in heightening their visibility in the foreign procurement system, and in obtaining necessary technologies.[64] As trade facilitation can increase the efficiency of the trade flow across national boundaries, it heightens a country's GVC competitiveness and is thus a fifth domain of importance.[65] Finally, infrastructure can aid this efficiency, and should thus be a target depending on the specific GVCs a country seeks to grow in.[66]

The state can develop these six domains by adopting different roles within the GVC. This paper's analytical framework thus also builds on Horner's (2017) framework on the four possible roles of the state as a facilitator, regulator, producer, and buyer. As a facilitator, the state by use of supportive policies aims to aid firms in their upgrade attempts.[67] These policies can be tailored to different end markets, which sometimes have different participation requirements.[68] The state as regulator in contrast aims to constrain activities of global lead firms or suppliers by establishing a certain domestic regulatory framework.[69] This role is said to depend on the level of state capacity and institutional legitimacy and is suggested to be gaining prominence in times of growing backlash against economic globalization.[70] By directly conducting state- owned production activities in competition with other private forms within GVCs, the state acts a producer.[71] This does not necessarily have to be in the form of state- owned enterprises (SOEs), but could instead also be through state investment in private firms or hybrid SOEs.[72] Finally, the state can also act as buyer, a role that has so far received the least attention in the academic field. This by public procurement of products and services, in which the state may discriminate in terms of which foreign suppliers to buy from.[73] This framework does have some limitations. First, the separation between different roles is not always straightforward, as for example the facilitator and regular roles can be closely related. Second, actions related to a certain role, such as subsidies to facilitate, may only be applicable to certain target group (for example, domestic firms). Finally, these actions are dependent on cohesion within the state on policy formulation.[74] Yet, despite these limitations, this paper's framework, combining the six domains and four roles approach, as visualized in Table 1, offers a suitable theoretical lens to examine the role of the Chinese state in strengthening its maritime economic power.

Table 1: Analytical Framework

ROLE OF THE STATE	DOMAIN					
	Human Capital	Standards and implementation	Investment strategies	Local firm development	Trade	Infrastructure
Facilitator	• Invest in techincal and vocational educaiton and training systems (TVETs) • Establish linkages between universities and firms	• Financial and technical support	• Special Economic Zones (SEZs) • Specialized industrial parks • Tax incentives	• Public services to support local firms (ex: information sharing platforms) • Subsidies • R&D incentives Tax incentives	• Trade agreements • Export promotion activities	• Strengthen industry-specific infrastructure capacity
Regulator	• Labor regulation	• Quality controls	• Restriction on foreign investment	• Local content requirement	• Lowering of Import tariffs • Rationalization of regulatory procedures • State marketing boards • Price control mechanisms	• Placing customs authorities in Export Processing Zones (EPZs)
Producer				• State-owned enterprises (SOEs) • Development of clusters • State investment in private firms		
Buyer				• Public procurement		• Public procurement

Based on: Horner & Alford, 2019; Bamber & Frederick, 2019; Morris & Staritz, 2019, De Marchi & Alford, 2022; Horner, 2017.

IV. Methods and Data

This paper explores China's development of its maritime economy in three ways: a discourse analysis conducted on Chinese-language articles from influential Chinese newspapers, a thematic analysis conducted on relevant Chinese-language policy documents, and descriptive statistical analyses to examine the actual progress in China's maritime economy. In this manner, the trustworthiness of the research is attempted to be heightened via method and data triangulation, as utilizing different methods and data sets allows the researcher to minimize the impact of potential biases, such as selection bias.[75]

First, to explore the Chinese conceptualization of the maritime economy in the broader context of China's haiyang qiangguo 海洋强国 (strong maritime power) strategy, a discourse analysis is conducted on newspaper articles published in Qiushi and Renmin Ribao between 2013 and April 2024. Renmin Ribao is a Chinese- language newspaper possessed by the Communist Party of China. Qiushi, likewise, is an official publication of the Central Committee of the Communist Party of China. Accordingly, both are suited to discover the guiding ideas and opinions of the Party.[76] Because of its prominence of political ideology, seen in the Chinese context as "a body of ideas linked to power, language, social practices, and institutions" which allows for political forces to legitimize their strategies through fitting narratives, China is a particularly suitable case to study state discourse. It must be mentioned, however, that there is a difference between discourse and practice.[77] Though discourse can shed light on elite signals, it is up to governmental institutions to translate these signals into specific policies.[78] Because of this, the research design takes a three-pronged to look beyond discourse, which is detailed in the following sections. As the aim of this aspect of the paper was to research the maritime economy specifically in the context of haiyang qiangguo to see how important the Chinese government estimates the development of the maritime economy to be for the development of maritime power, the search for articles started with the search term haiyang qiangguo on both the website of Qiushi and the databank of Renmin Ribao articles. This resulted in 138 and 649 articles published in Qiushi and Renmin Ribao, respectively. After data selection, manually removing duplicates and articles that did not discuss the maritime economy, 32 Qiushi and 36 Renmin Ribao articles remained available for the discourse analysis.

Second, China's maritime economic policies since 2013 are then examined utilizing a qualitative thematic analysis, which allows for the identification of underlying themes within a dataset.[79] In this paper, the analysis is conducted deductively. Specifically, the predetermined codes are taken from the theoretic framework on state actions for upgrading in GVCs as detailed in the previous section (Table 1). Qualitative thematic analysis is an attractive methodology for scholars in the field of international political economy (IPE) because of its middle-range interpretation, contextualization, and validity capabilities and its aptness to datasets that are both too large for discourse analysis and too small for quantitative content analysis.[80] There are, however, also disadvantages to the methodology, such as the risk that its flexible approach may result in inconsistencies and a lack of coherence in the findings.[81] Throughout the thematic analysis, this risk was mitigated using a Computer Assisted Qualitative Data Analysis (CAQDAS) program: N-Vivo. This kind of software program does not replace the researcher's manual coding, but aids the recording, storing and indexing of the dataset. In this way, it contributes to the transparency and reproducibility of the analysis.[82] The data chosen for the qualitative thematic analysis are policy documents concerning China's maritime economy since 2013. More specifically, China's 12th, 13th and 14th Five-Year-Plans (FYPs) on the Maritime

Economy are examined. The FYPs are in a top-down manner issued by the central, provincial, and local governments. As they act as the driver of further development of China's economy over periods of five years, they are one of the essential aspects of China's policy system.[83] Important to note is that the nationally issued 14th FYP on the maritime economy is not yet publicly available. To circumvent this limitation, the decision was made to analyze the 14th Five-Year-Plans on the ocean economy of China's official coastal provinces: Fujian, Guangdong, Guangxi, Hainan, Hebei, Jiangsu, Liaoning, Shandong, Shanghai, Tianjin, Zhejiang. These plans, 11 in total, were collected on the websites of the relevant provinces. Thus, a total of 13 Five-Year-Plans were examined.

Third, the examination of the PRC's maritime economy development since 2013 will be further enriched through descriptive statistical analyses to show the actual progress of this development. For this, additional primary sources were used: the Orbis and UNCTAD databases and the China Marine Statistical Yearbooks (2013–2022). These yearbooks, initially compiled by the State Oceanic Administration, are now composed by the Department of Marine Strategic Planning and Economy of the Ministry of Natural Resources.

V. China's Pursuit of Maritime Economic Power: The Discourse Level

Examining Qiushi and Renmin Ribao articles demonstrates that authoritative discourse on the development of the Chinese maritime economy pays attention to the importance of GVCs and thus adds insight on the relevance of this theory for the concept of maritime economic power. China attaches great importance to the maritime economy, as it is seen an important engine or "blue artery" of the national economy.[84] Xi Jinping stressed the rise of the sea in international political, economic, military and scientific and technological competition and its linkage to the state of national survival and development.[85] Noticeable is also the comparison with how Western powers in the past developed maritime power and how China is not to follow this path.[86] Since the Era of Global Navigation, over 500 years ago, the ocean has played an important role in the competition among global powers, and has allowed both the UK and the U.S. to become leaders.[87] Consequently, as China started later in the development of maritime technological innovation, China is lagging behind the UK and the U.S.[88] Because of this, it is facing technological dependencies in the maritime domain, forcing China "to be a permanent consumer who cannot escape" of foreign technological maritime products, according to Li Naisheng, director of the Qingdao National Maritime Science Research Center.[89] Maritime technology is seen as the modern weapon of the country, "it must not be bought or retrieved by begging, only by relying on ourselves."[90] To this regard, Lei Fanpei, Chairman of the China Shipbuilding Industry Group said that "only having the key core technologies firmly in our own hands will allow us to protect our national security." Maritime technology should be created in China, instead of made in China.[91]

As a result, China needs to industrially upgrade in GVCs. Independent innovation must cultivate and grow strategic industries in the maritime economy and cultivate more high-end brands with global influence.[92] As China now has the historical opportunity to technologically catch up, it should strengthen its technological innovations to extend its GVCs and internationalize its maritime economy.[93] To this regard, the importance of connectivity is also mentioned, specifically in the context of the B&R initiative.[94] The extension of maritime

industrial chains should be accelerated, and a supervision system that manages the entire chain ought to be established.[95] This discourse does not only apply to VSVCs and high-end technology, but also to AVCs. The importance of extending the aquatic products and fishery value chains is for example stressed, and occasionally linked to China's food security.[96]

Finally, what is noticeable, though not surprising in the context of the state's role as producer in GVC theory, is the alignment of SOEs with the Communist Party on the ideas behind China's maritime economy build-up. The China Shipbuilding Industry Corporation (CSIC) for example, stated in 2015 that it should be brave enough to undertake the historical mission of leading the maritime equipment development and building a maritime power. It will strive to be a front-runner of a strong maritime nation and accelerate the"going out" of maritime equipment.[97] In 2019, then chairman of SCIC, Lei Fanpei, added that CSIC will continue to adhere to the road of independent control by developing standards and thus will try to enhance influence in the global maritime community.[98] Similarly, China National Offshore Oil Corporation (CNOOC) stated that it has mastered key core technologies with independent intellectual property rights, and formed a full set of technological capabilities. Fundamental to SOEs, according to CNOOC, is adherence to the leadership of the Party.[99] Finally, China Ocean Shipping Company (COSCO) as well seems to adhere to authoritative opinions on Chinese maritime economic power. It states that the future competition of shipping will be on the whole industrial chain, and that COSCO, by providing end-to-end GVCs has ensured the safety and stability of foreign trade, and consequently has increased its industry-leading capacity. It has built a global network transportation system, in which it sees itself as a lead firm, compared with history playing now a greater role in the maintenance of the stability of GVCs.[100]

VI. China's Pursuit of Maritime Economic Power: Policy

Of course, this discourse analysis only illustrates elite signals and the intention to develop the Chinese maritime economy through industrial upgrading. The analysis of policy documents is necessary to confirm whether the Chinese government actually utilizes upgrading aimed measures. Not all state roles as stipulated in the analytical framework could be confirmed through the policy analysis (see Table 2). Nevertheless, as all of the six domains for upgrading mentioned in this paper's framework were present in the analysis of the documents, with most domains illustrating at least two governmental approaches, the analysis demonstrates the applicability of GVCs theory. In addition, these domains do not solely exist in the most recent FYPs, but instead throughout the whole time period from 2013 until now, which shows that the relevance of GVCs for the state development of Chinese maritime economic power is not a novelty.

Table 2: Confirmed State Roles in Policy Analysis

Domain	Facilitator	Regulator	Producer	Buyer
Human capital	X	X		
Standards	X	X		
Investment strategies	X			
Local firm development	X	X	X	
Trade	X	X		
Infrastructure	X	X		

Source: Author's analysis of FYPs.

6.1 Human Capital

All FYPs emphasize the importance of cultivating maritime talent. For this aim, both faciliatory and regulatory measures are present. A first faciliatory measure is to strengthen maritime education, both quantitatively and qualitatively.[101] Second, the promotion of connections between educational institutions and the ocean industries.[102] Third, the flow of maritime talent throughout the state should be stimulated. This could for example be done by creating an information service platform or directory guide that highlights certain labor shortages in key ocean economy industries.[103] Strengthening international cooperation is the fourth and last faciliatory measure for this policy domain.[104] In addition, there are also planned regulatory measures such as the improvement of labor regulations or the provision of certain incentives for maritime talent.[105] Some of these measures are not new policies, but the result of loosening of existing regulatory measures, such as the relaxation of restrictions on the conditions for foreign maritime talent to come to China, or the lowering of the tax burden on the personal income tax by more than 15% for certain employees in the ocean economy.[106] The policy measures found within the FYPs for this domain confirm the state's faciliatory and regulatory role. A more concrete overview of the detailed policy actions connected to these roles can be found in Table 3 (Appendix).

6.2 Standards

Standards are mentioned throughout all FYPs, in two different ways. One the one hand, they are connected to the qualitative development of China's ocean economy. This entails policy goals such as the standardization of ocean equipment.[107] Another policy goal is the adaptation of aquatic products, shipbuilding, etc., to global standards and norms.[108] To realize these goals, the state acts as both a facilitator and a regulator. It supports companies in reaching the required international norms and quality controls on products. On the other hand, the FYPs link standards to the importance attached to China's development of international standards.[109] In this, the state again takes on a faciliatory role. Three specific policy measures are mentioned in this regard. First, incentivizing or funding ocean research institutions and companies' standardization research.[110] Second, encouraging these firms and research centers to participate in the formulation and revision of international standards in ocean-related international organizations.[111] Finally, a third policy measure is strengthening the mutual recognition of standards through international cooperation platforms or regional trade.[112] Similar to the human capital policy domain, the state's faciliatory and regulatory role are confirmed.

6.3 Investment Strategies

Investment is likewise addressed in every FYP. Different investment strategies are present. One strategy focuses on the attraction of foreign investment in China's ocean economy. [113] The state can advance this goal through several faciliatory actions. It could achieve this by creating more free trade zones. Likewise, it could establish special economic zones (SEZs) and specialized industrial parks.[114] It could also increase investment promotion activities and international economic cooperation (e.g., the maritime Belt and Road Initiative).[115] Finally, the government can promote foreign direct investment (FDI) by making China's investment environment more transparent and investor- friendly. A concrete example of how to achieve this, is the establishment of a complaint mechanism for FDI.[116] A second strategy is increasing the amount of Chinese investment in the ocean economy. This entails both inward and outward investments.

The outward investments link to the "going out" strategy of Chinese firms.[117] They can materialize as the acquisition of shares in overseas ocean- related firms. Equally, these investments could go into the construction of overseas ocean-related industrial or logistics parks and coastal ports.[118] Again, the state can take up a facilitator role via a range of measures. It could, for instance, enhance information on overseas investment environments or encourage the development of overseas investment risk insurance.[119] Inward investments, namely Chinese investment in Chinese ocean-related companies, are covered in the next paragraph due to the overlap with the domain of local firm development.

6.4 Local Firm Development

To support Chinese ocean-related firms in their development, the state takes up the role of facilitator, regulator and producer. Various measures can advance this goal, such as tax incentives, supporting public services, and incentives for the development of R&D capacity.[120] Table 4 (Appendix) summarizes more details regarding these measures. Less common policy actions include subsidies and increased international technical cooperation.[121] Besides these facilitatory measures, some FYPs also mention regulatory policy measures. They mostly center around the reduction of "red tape." The simplification of financial support approval processes and the reduction of administrative barriers to the construction of interprovincial development zones are two examples.[122] Finally, the state as a producer, invests in Chinese ocean-related firms. It also supports the development of marine industry clusters. This happens, for example, through annual budget funds, or the establishment of provincial ocean investment companies.[123] Hence, for this domain, three state roles can be confirmed.

6.5 Trade

This domain is mostly linked with facilitatory and regulatory policy measures. The facilitatory measures indicate much similarity with those aimed at attracting foreign investment. Facilitating trade is for example done through trade agreements such as the Regional Comprehensive Economic Partnership (RCEP) or the Belt & Road Initiative, or through the promotion of export activities. Examples of these activities are trade fairs like the China–CNEE trade fair and the China–ASEAN business and investment summit, or exhibitions such as the 21st-century maritime silk road expo or the Hainan yacht exhibition.[124] Trade can also be facilitated by creating free trade zones and international shipping centers or integrated sea-related trade services centers.[125] Regulatory measures, in comparison, take the shape of certain price control mechanisms or rationalizations of procedures.[126] More details regarding these regulatory measures can be found in Table 5 (Appendix).

6.6 Infrastructure

Though for this policy domain no detailed policy measures were listed, the importance of infrastructure is nonetheless stressed in all FYPs. Notably, the focus is on three specific categories: logistics, knowledge and industry-specific infrastructure. First, ocean logistics infrastructure are mainly ports. They can be enhanced through the construction of automated intelligent terminals or large, specialized terminals, suited for coal, oil, liquefied natural gas (LNG), etc.[127] Integrated with other infrastructure such as coastal airports, highways and railway stations, ports may form international logistics hubs.[128] Deep water channels (created by dredging), dykes and integration with custom clearance services could further strengthen this first category. Second, knowledge infrastructure represents for instance high-tech industrial

parks (e.g., the Blue Silicon Valley in Qingdao), ocean science and technology innovation zones and ocean information communication networks.[129] Third, industry-specific infrastructure is mostly linked to industries with AVCs.[130] A frequent example is the fishery and aquaculture industry, which should in the future include entire processing belts, connected to logistic centers as a sort of "cold chain."[131] Though the notable linkage with AVCs, there are also mentions of industry-specific infrastructure needs for VGVCs, such as the shipbuilding industry.[132]

The policy analysis demonstrates that the Chinese government, not only on a discursive level, shows clear ambition to upgrade its maritime economy within GVCs, but also seems to design policies that strive toward this upgrading. Measures targeted at human capital, standards, investment strategies, local firm development, trade and infrastructure are put forward to build linkages in AVCs, more often linked to industries based on resources, such as fishery, the energy sectors and deep- sea mining, and to upgrade VGVCs like the shipbuilding sector.

VII. China's Pursuit of Maritime Economic Power: Progress

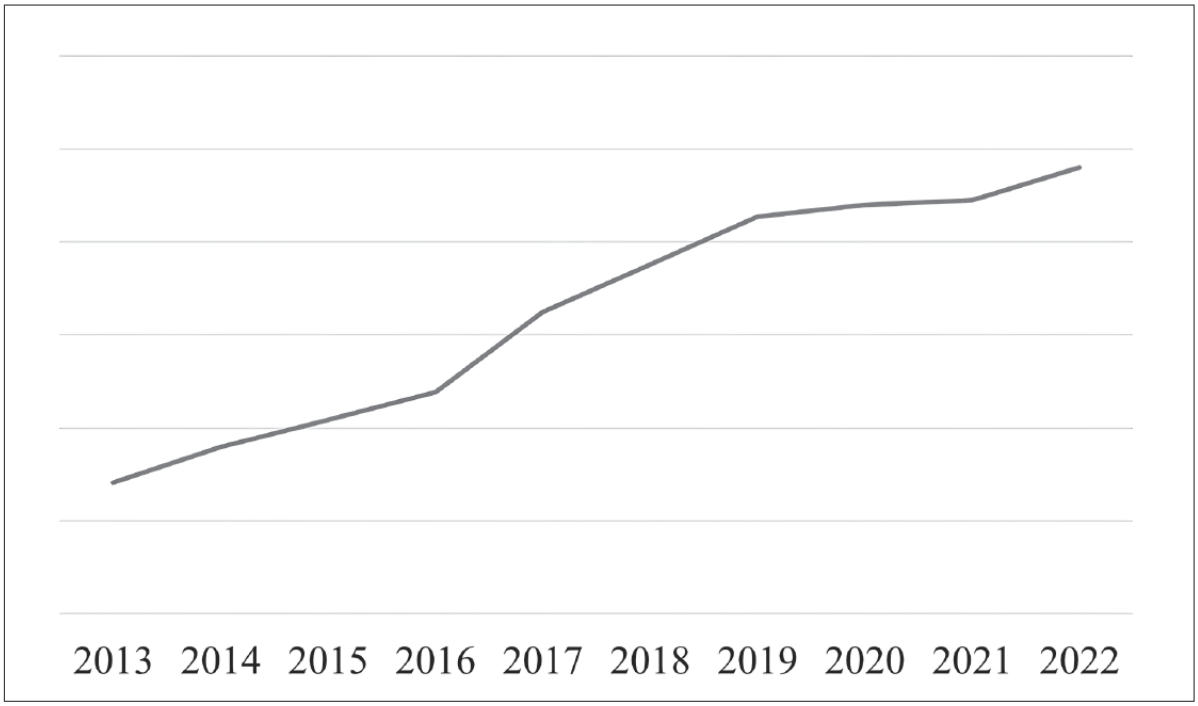

Figure 1. Chinese Port Liner Shipping Connectivity Index (40 Chinese Ports) (author's calculations based on data retrieved from UNCTADstat).

Available quantitative data gives some insights about to what extent the PRC's ambitions to upgrade its maritime economy within GVCs mirrors actual progress. The Port Liner Shipping Connectivity Index reflects "a port's position in the global liner shipping network."[133] The higher the value, the better connected. Based on the data of all Chinese ports that had no missing data between 2012 and 2022, an average of these indexes was calculated to look at the aggregated evolution over time. Figure 1 shows the obvious growing connectivity of Chinese ports. The Liner Shipping Connectivity Index then indicates a country's integration level into global liner shipping networks. It is calculated based on the number of scheduled ship calls per week in the country, the deployed annual capacity in Twenty-Foot-Equivalent Units (TEU): total deployed capacity offered at the country, the number of regular liner shipping services from and to the country, The average size in TEU (Twenty-Foot-Equivalent Units) of the ships

deployed by the scheduled service with the largest average vessel size and the number of other countries that are connected to the country through direct liner shipping services.[134] Showing China's Index within the time period 2013–2022 in comparison with other international actors (Figure 2), again shows that China has been successfully growing its connectivity, both over time as in comparison with other states or international actors. Integration within GVCs is in part reflected in how well a country is connected in global shipping networks.[135] This data shows that the PRC's maritime economy is successfully growing its share in the global maritime connectivity. It does however not demonstrate that the Chinese maritime economy successfully upgraded its GVCs to the higher added value segments within the ocean economy.

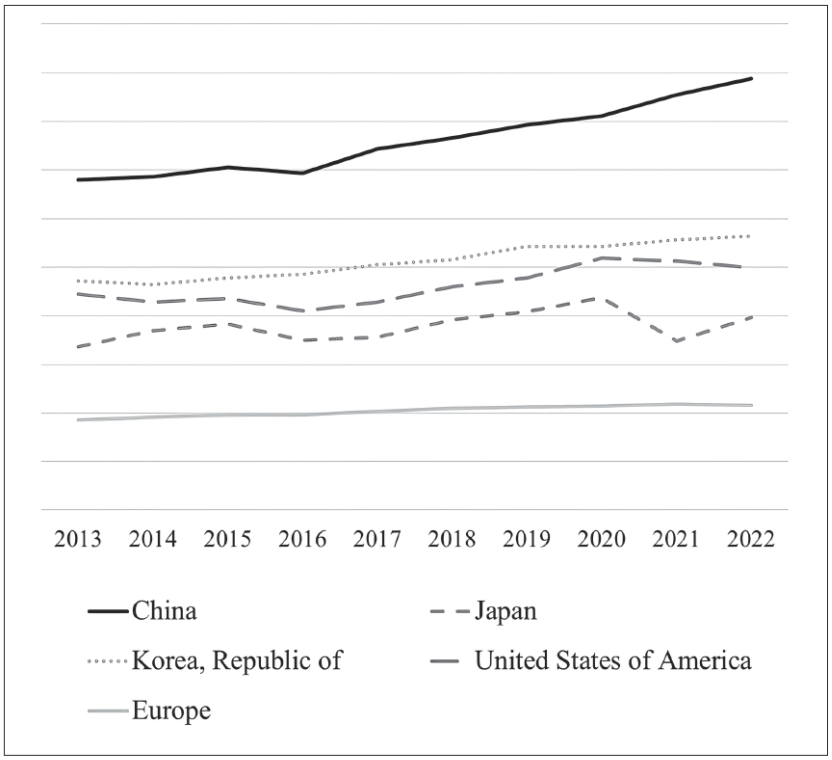

Figure 2. Liner Shipping Connectivity Index (UNCTAD).

Other economic data tells a similar story. The evolution of China's ocean GDP, an economic measurement created the Chinese government and published annually in the maritime statistical yearbook, show that the GDP of China's maritime economy is growing (Figure 3). This would suggest that China's build-up of its maritime economy is successful. Another evolution that would confirm this thought is China's strong growth of its percentage of ships built annually compared with other international actors, as China's percentage is rising while that of other actors such as the Republic of Korea and Japan are diminishing, and Europe and the U.S. are way below (Figure 4, see Appendix). Finally, looking at Orbis data shows that the number of Chinese companies in the top 100 companies (based on operating revenue in USD) increased in several maritime sectors (Figure 5). This data shows China's quantitative growth in its maritime economy and confirms the progress in establishing internationally leading firms. Yet, Table 6 (Appendix) shows the growth rate of China's added value per maritime industry between 2013 and 2021 being negative for two of China's twelve maritime industries: the offshore oil and gas industry and the marine salt industry. Besides these four sectors, the shipbuilding sector shows a low growth rate of 4.19% since 2013. These numbers confirm that the Chinese maritime economy is growing and becoming more integrated in the global market. Nevertheless, more optimization and qualitative growth and upgrading is necessary, with China's maritime economy still having a lower technology contribution rate than those of developed.[136]

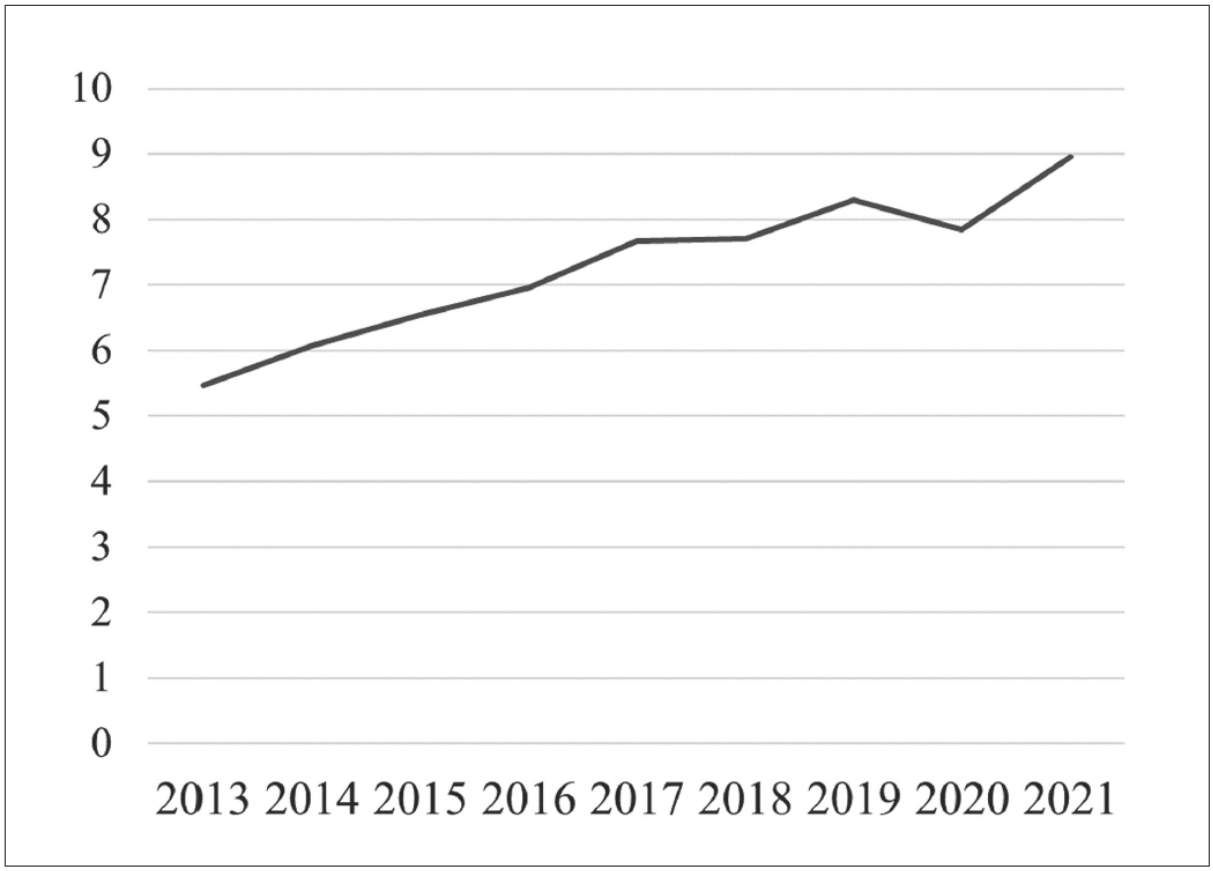

Figure 3. Ocean GDP (in trillion RMB) (China Marine Statistical Yearbooks [2013–2022]).

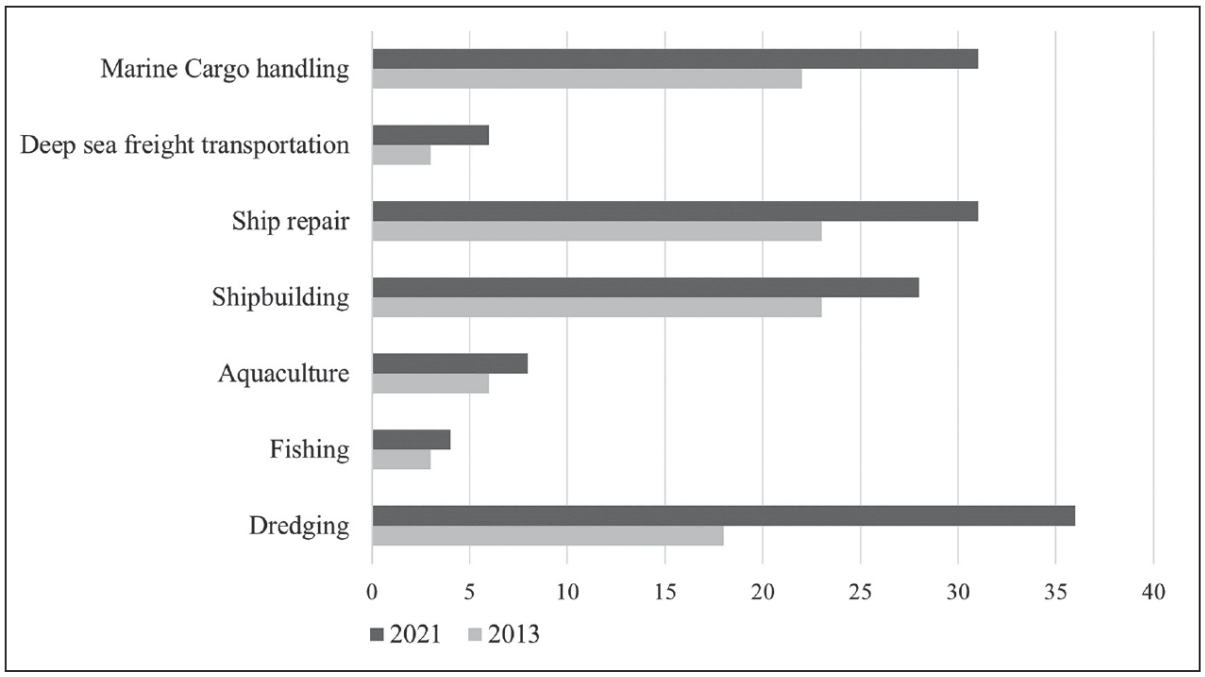

Figure 5. Number of Chinese Companies in Top 100 per Maritime Industry (author's calculations, based on data retrieved from the Orbis database).

VIII. Conclusion

This article uses the development of China's maritime economy since 2013 as a case study to add to the current understanding of maritime power in the economic domain. The discourse analysis illustrated the authoritative importance attached to GVCs for the development of Chinese maritime economy and Chinese economic maritime power. The analysis of the FYPs then confirmed that the Chinese government, not only on a discursive level, demonstrates clear intent to upgrade its maritime economy within GVCs, but also seems to design policies that strive toward this upgrading. It, for example, takes on a faciliatory and regulatory role in multiple policy domains such as human capital, standards, local firm development, trade, etc. This is true for both AVCs, in sectors such as fishery, the energy sectors and deep-sea mining, and for VGVCs like the shipbuilding or maritime equipment sector. Finally, two key findings emerged from the descriptive statistics mentioned in this article. First, Chinese growth in certain maritime global markets (such as shipbuilding), in the amount of value added captured in its industries and in strong domestic ocean-related firms indicates a stronger position in several maritime GVCs. Second, the increasing Chinese Port Liner Shipping Connectivity Index and Liner Shipping Connectivity Index signify an increasingly connected Chinese position within these GVCs. Thus, the Chinese case does indeed illustrate that maritime power depends on both connectivity and where a state is positioned within maritime GVCs.

This finding emphasizes the relevance of Global Value Chains in discussing a state's maritime power in the economic domain. Industrial upgrading of a state's domestic maritime firms might strengthen a state's maritime economic power resources in two ways. First, it may help these maritime firms in gaining market shares, and thus generate more welfare for the state, which then in response can utilize these economic resources to strengthen other maritime power sources such as technological power or naval power.[137] Second, industrial upgrading may cultivate leading domestic firms that as lead firms can then internationally take up a central position in GVCs. The centrality of these firms within the GVCs is thus a second resource of maritime economic power, as it is a possible way of making other nations dependent on those firms. This because the state with the asymmetrical structural benefit in the GVC could deny third parties' access to the maritime GVCs, if this party does not act in its interest.

Hence, economic maritime power is all about mitigating one own's structural dependencies in the maritime economy. Simultaneously, it is about dominating connectivity, or the power to network, through shipping companies, ports, companies that exploit natural resources at sea, and so forth. In this way, companies that focus on maritime shipping, seaport operations, fisheries, undersea resources and other forms of maritime commerce can all be seen as contributing to a nation's maritime power.[138] The limited number of ports that can receive the biggest portion of world trade, for example, all own expensive unloading facilities necessary to unload the majority of modern cargo ships. A state that lacks the maritime economic power to develop this kind of hub ports, will involuntarily be more dependent on states that do have this power. Hence, the oceans, though relatively free to use for all, can be seen as a concentrated network of asymmetric structural interdependencies. In short, "the largest power does not always win, the most connected one does."[139]

Appendix of Tables

Table 3: More Concrete Policy Measures Connected to "Human Capital"

State role	Policy goal	Examples of concrete policy measures
Facilitator	Strengthen maritime education	• Increase in quantity of ocean-related educational institutions • Increase in quality of educational programs
Facilitator	Strengthen link educational institutions and industry	• Increase in internships opportunities
Facilitator	Increase flow of maritime talent within country	• Creation of information service platform/ directory guide • Increased use of diversified investment mechanisms for talent development
Facilitator	Strengthen international cooperation	• Organization of maritime educational training courses with foreign partners • Increase in cooperation between maritime educational institutes • Creation of collective ocean-related think tank platform with foreign partners
Regulator	Improvement of labor regulations	• Improvement of selection, appointment, skills recognition, evaluation and promotion-policies

Source: Author's analysis of FYPs.

Table 4: Detailed Faciliatory Policy Measures Connected to "Local Firm Development"

State role	Policy goal	Examples of concrete policy measures
Facilitator	Develop tax incentives	• Improved tax rebate policies at ports of departure • Reductions or exemptions of corporate income taxes for certain maritime industries
Facilitator	Increase supportive public services	• Support firms in listing in domestic and foreign capital markets • Support firms in forming sea-related industry associations or chambers of commerce • Develop consulting and market research services • Improve legal advice capacity • Create information platforms
Facilitator	Increase R&D capacity	• Increase in influential R&D centers in China • Support firms in forming ocean industry alliances with other firms, scientific research institutes and universities

Source: Author's analysis of FYPs.

Table 5: Detailed Regulated Policy Measures Connected to "Trade"

State role	Policy goal	Examples of concrete policy measures
Regulator	Establish price control mechanisms	• Establish a globally influential aquatic products distribution and price formation centre • Construct state marketing boards or trading platforms (for aquatic products or common bulk commodity products like coal, iron ore, steel, oil etc)
Regulator	Increase the rationalization of procedures	• Optimization of licensing procedures • Open up international ship registration and inspection system • Increase construction of ship registration offices • Develop a transparent list of port operation and terminal service charges and price lists • Lower the threshold of entry for certain ships • Promote online approval of import and export licenses

Source: Author's analysis of FYPs.

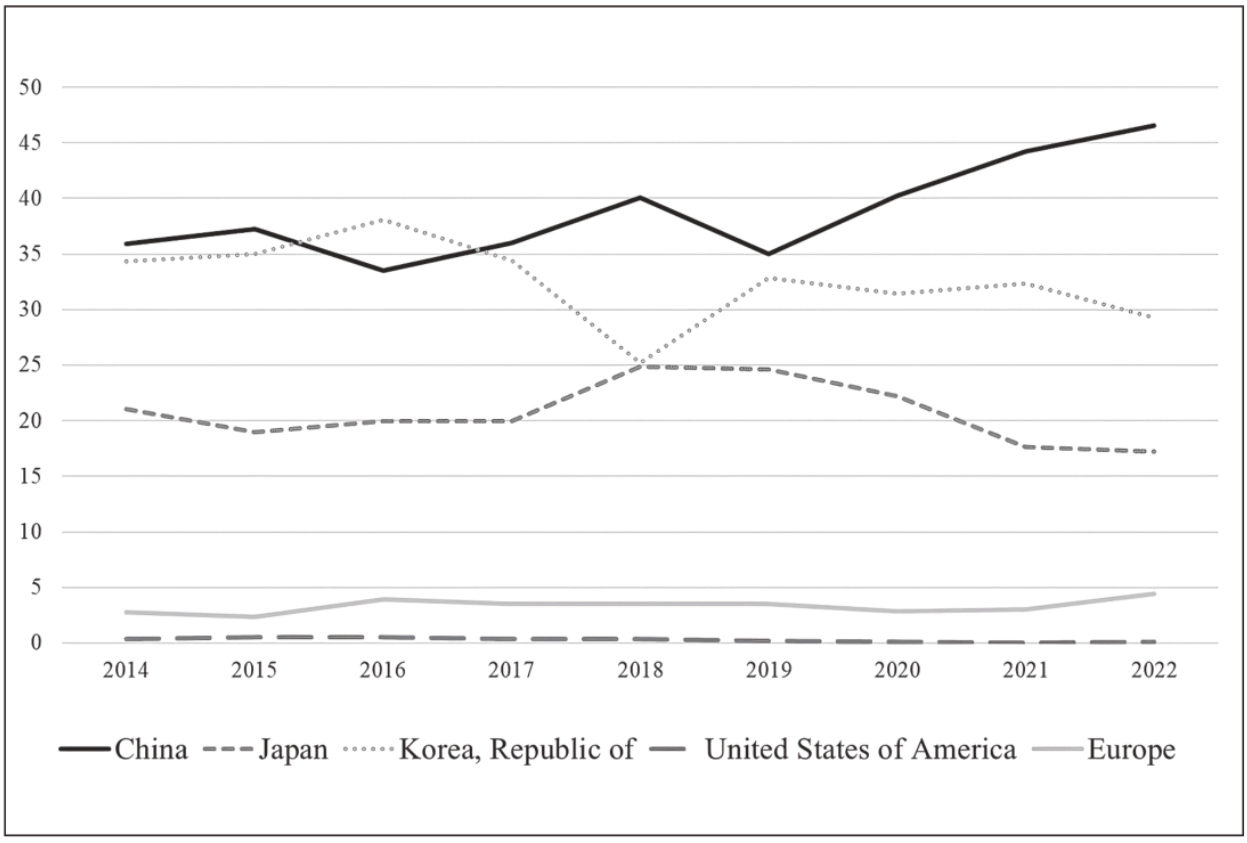

Figure 4. Percentage of Ships Built Annually per International Actor. Source: UNCTAD.

Table 6: Statistics on Chinese Added Value in…

	2013	2021	Growth
	(Unit: 亿元/100 million RMB)		
Marine Mining Industry (海洋矿业)	54.00	186.00	244.44%
Marine Electric Power Industry (海洋电力业)	91.50	327.20	257.60%
Marine Biomedicine Industry (洋生物医药业)	238.70	694.80	191.08%
Coastal/Marine Tourism (滨海旅游业)	7839.70	14161.70	80.64%
Seawater Utilization Industry (海水利用业)	11.90	313.10	2531.09%
Maritime Communications and Transportation Industry (海洋交通运输业)	4876.50	6979.60	43.13%
Marine Fishery Industry (海洋渔业)	3997.60	5027.00	25.75%
Marine Shipbuilding Industry (海洋船舶工业)	1213.20	1613.00	32.95%
Marine Engineering Architecture Industry (海洋工程建筑业)	1595.50	1892.70	18.63%
Offshore Oil and Natural Gas Industry (海洋油气业)	1666.60	1617.90	-2.92%
Marine Chemical Industry (海洋化工业)	813.90	3905.50	379.85%
Marine Salt Industry (海洋盐业)	63.20	40.60	-35.76%

Source: China Marine Statistical Yearbooks (2013–2022).

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