Polar Record

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Sustainable resource development in the Arctic: Using export trade agreements to restrict environmentally harmful subsidies

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Research Article

Cite this article: Kobayashi T. Sustainable resource development in the Arctic: Using export trade agreements to restrict environmentally harmful subsidies. *Polar Record* **56**(e17): 1–9. doi: https://doi.org/10.1017/S0032247419000524

Received: 24 May 2019
Revised: 31 August 2019
Accepted: 9 September 2019

Keywords:
Export subsidies; WTO; Critical mass agreements; WTO dispute settlement; Countervailing duties (CVD)

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Abstract

Although the Arctic is emerging as a promising region for energy development and maritime transportation, navigational safety is a persistent and growing concern. What can international trade regulations do to ensure the safe transportation of natural resources on the Northern Sea Route (NSR) and the sustainable development of the Arctic region? Government support is almost inevitable for shipyards, particularly in a highly competitive market. Shipyards build large-scale vessels that navigate the Arctic Ocean. However, excessive export competition will soon lead to over-production and exportation of substandard products. Assuming that even a single incident in the NSR could have a disastrous impact on the flora and fauna of the entire Arctic region, the potential for substandard vessel use represents a significant risk and potential damage to the environment. Although the World Trade Organization (WTO) has detailed rules for this purpose with an effective dispute settlement mechanism, the history of WTO disputes has proven that WTO proceedings sometimes result in unintended consequences. As an alternative option, along with negotiations under the WTO and the Organisation for Economic Cooperation and Development (OECD), this paper suggests the possibility of a critical mass agreement to mutually allow more flexible government support for vessels only if they have superior environmental performance.

Introduction

Shipping and shipbuilding industries have suffered from recurring market fluctuations and structural recessions . This resulted mainly because of the excessive competition within a market that was limited in size (OECD, 2017, para. 69). However, during the recent decade, the Arctic region has become attractive to the shipping and shipbuilding industry because of its potential for rapid development; this has happened partly due to continuous warming in the region. Region-wide warming caused major reductions in sea ice, and these circumstances have made the exploitation of resources and transportation economically feasible. Furthermore, this has also led to an increase in the demand for large-scale vessels that satisfy the special technical requirements necessary for navigating and transporting goods and services in the Arctic Ocean, especially through the Northern Sea Route (NSR).

In 2017, the amount of goods shipped through the NSR increased by almost 35% from 2016 (Arctic Law and Policy Institute, 2018, para. 110). In 2018, cargo volume increased by more than 80% in the first eight months compared with the corresponding period in the previous year along with an increase in the number of tourists sailing along the NSR (Humpert, 2018). In July 2018, an icebreaking liquefied natural gas (LNG) tanker (ice class Arc7) operated by a Russian developer navigated from the Yamal Peninsula eastward to China via the Bering Strait (gCaptain, 2018). The tanker had virtually no icebreaker support. This class of ships can also sail unassisted along the NSR west of Yamal all year round (World Maritime News, 2018a), and, presumably, to the northern part of Greenland.

While the Arctic is emerging as a promising region for energy development, there is a growing concern regarding its security and military aspects. Taking a national security perspective, e.g. US President Trump reportedly showed significant interest in buying Greenland from Denmark (Farzan, 2019). At the same time, safety with regard to energy transportation has become a growing concern (Arctic Economic Council, 2018). Fierce international competition is more likely than not to lead to the dumping of defective products and/or the substandard operation of large-scale ships, any of which carries a significant risk of environmental harm. Even a single incident could have a disastrous impact on the flora and fauna of the Arctic region (World Maritime News, 2018b) as well as its overall economic and environmental value to humanity.

What are the characteristics of the vessels built to navigate the Arctic Ocean? First, large-scale cargo, tanker, and tourist vessels are in high demand in the Arctic region, particularly along the NSR. Second, the environment is highly vulnerable to nautical disasters or oil spills. Third, large-scale vessels require enhanced technological sophistication to navigate the rough surface of the NSR: e.g. icebreaking capabilities introduced into large-scale tankers require

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special expertise. There is a significant risk of exposure to radioactive materials along the Russian shore of the NSR. Finally, only a few countries—China, Korea, Japan, and a handful of Nordic countries—are currently involved in this growing market. For example, shipbuilders in Korea, China, and Japan have shown outstanding performances with regard to building tankers, while around 60% of the operating ice breakers are produced in Finland (OECD, 2018, para. 10).

Because the heaviest industries tend to be the most vulnerable to market fluctuations, international competition in the shipbuilding and shipping sectors has intensified. Daewoo Shipbuilding & Marine Engineering (DSME), the third largest shipbuilder in the world, was in danger of going bankrupt and had to be bailed out by the Korean government in 2018; it was merged with Hyundai Heavy Industries in March 2019 (World Maritime News, 2019). In July 2019, the two largest state-owned shipbuilding companies, China State Shipbuilding Corporation and China Shipbuilding Industry Corporation, announced their plan for merger.

Until now, Russian and foreign developers of the Yamal gas reserves have procured LNG tankers mainly from Korean companies (Chung & Obayashi, 2018). However, Chinese competitors are catching up rapidly. One example in this context is the Vistula Maersk series of vessels introduced in 2018, which are built at the China Ocean Shipping Company Zhoushan Shipyard. High-tech maritime vessel manufacturing is one of the 10 key industries mentioned in the "Made in China 2025" ("China Manufacturing 2025") trade policy (EU Chamber of Commerce in China, 2017, para. 1; Institute for Security and Development Policy, 2018), and the Chinese government views the NSR as a component of its One Belt One Road project. For example, China has built a domestically constructed polar icebreaker, and a Chinese government-owned corporation plans to build a nuclear icebreaker within several years (Eiterjord, 2018, para. 1).

It is no secret that China has been subsidising its shipyards (Kalouptsidi, 2019). Not surprisingly, strategic, military, and geopolitical considerations affect industrial policy. Under the framework of the World Trade Organization (WTO), member states can derogate from WTO obligations if they take measures based on legitimate national security considerations (see WTO, 2019b). Reportedly, however, the Chinese government focuses more on economic and commercial interests rather than military or security concerns (Goldstein, 2019; see also Xinhua, 2018). In this sense, international competition can be depicted as a matter of economic interest rather than national security interest.

In the midst of rapidly growing markets and business interests, what type of international norms can ensure the sustainable development of the Arctic region? This paper casts a new light on the role of international trade law rules, particularly for the international regulation of export subsidies in the shipbuilding industry as a viable tool for sustainable Arctic development.

International regulation of export subsidies and limits

Current rules under the WTO

The role of international trade rules in the Arctic

First, we must determine why we need international trade rules to prevent environmental hazards. Apparently, the most straightforward approach to environmental protection in a particular region is to strengthen the capability of intergovernmental agencies such as the International Maritime Organization (IMO), which monitors and surveys navigation and resource development on site. For example, the International Code for Ships Operating in Polar Waters (Polar Code) 2015 under the IMO provides detailed rules on ship structure, subdivision and stability, watertight integrity, machinery installations, and navigational safety (IMO, 2015, para. 3 ff). However, effective enforcement of domestic and international regulations requires sensitive communication among relevant agencies. This is not an easy task and would further complicate the process of creating detailed rules in the first place.

Then, can coastal states take effective measures to ensure navigational and operational safety in the Arctic region? It is true that a variety of rule-making activities have been discussed under the frameworks of the United Nations Convention on the Law of the Sea (UNCLOS) (see IMO, 2010). For example, Article 234 UNCLOS allows coastal states to employ special regulations in ice-covered waters within the exclusive economic zone. However, it might be technically difficult to monitor passages and safety specifications of vessels throughout the NSR. Reportedly, the Russian Northern Sea Route Administration found multiple instances of safety rule violations by foreign large-scale LNG carriers when they navigated the NSR (Riviera, 2018).

Assuming that conducting business along the NSR is a source of risky but lucrative business opportunity, efforts to enforce rules are quickly met by corresponding efforts to circumvent those rules. Overall, rules without China's involvement are of little use in reality. Existing shipbuilding technology is already sufficient for vessels to operate in the Arctic; however, what is critical for shipbuilders and operators to consider is whether or not the technology makes economic sense (Hong, 2018, para. 8). In this context, business and economic perspectives are important to establish effective international rules.

The basic features of the WTO rules

Since its establishment in 1995, the WTO has detailed regulations on the trade-related fields of law including subsidies, technical barriers to trade, and investment. In addition, the WTO has an effective dispute settlement system with an appeal mechanism. Notably, the WTO has been consistently cautious concerning environmental protection and norms. Environmental regulations have been treated as a legitimate exception to non-discrimination and trade liberalisation, which are basic WTO rules. For example, the Appellate Body (AB) report on the 1998 *Shrimp-Turtle* case acknowledged the normative value of the phrase "the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so" that was inserted in the preamble of the Marrakesh Agreement Establishing the WTO 1994 (the WTO Agreement). Although preamble by itself is non-binding, the AB found that the phrase justifies an "evolutionary" interpretation of Article XX(g) of the General Agreement on Tariffs and Trade (GATT), which has been incorporated as part of the WTO Agreement. This interpretation enables governments to impose trade restrictions for the purposes of environmental protection such as the protection of endangered species (WTO, 1998, paras. 129–134).

WTO rules regarding prohibited and countervailable subsidies

The WTO has detailed rules restricting the powers of its member states that they traditionally have to subsidise domestic industries. Among those restrictive rules, trade in goods, including vessels, is mainly governed by the Agreement on Subsidies and Countervailing Duties (ASCM).

https://doi.org/10.1017/S0032247419000524 Published online by Cambridge University Press

Under the ASCM, subsidies are deemed to exist if there is a financial contribution by a member government (including a public body under its authority) whereby a benefit is conferred. The benefit may be (i) a direct transfer of funds, (ii) foregone or uncollected government revenue that is otherwise due, (iii) goods or services other than general infrastructure provided by government, (iv) government payment to a funding mechanism, or (v) government direction to a private body to carry out one or more of the type of functions illustrated in (i)–(iii) above, which would normally be categorised and operated within the government functions (Article 1.1(a) ASCM). The benefit can also be in the form of income or price support that operates directly or indirectly to increase exportation or decrease importation (Article 1.1(b) ASCM).

Note that WTO rules do not restrict all forms of government subsidies. The rules target subsidies directed to a specific enterprise or industry to prevent unfair government intervention into private commercial activities. A limited number of domestic companies are privy to particular advantages to the detriment of foreign competitors, and the subsidies have an adverse impact on market conditions. In addition, a country's specific subsidies that benefit from its domestic industries may invite rapid countermeasures from foreign governments by granting subsidies to their domestic industries creating vicious cycles. Thus, the ASCM regulates varied forms of subsidies, not only in the form of hard currencies, but also through credits, guarantees, insurance, tax breaks, and any support that financially contributes to the specific industries.

First, Article 3 of the ASCM places a straightforward prohibition on export subsidies. For example, these include subsidies contingent (i) upon export performance or (ii) the use of domestic over imported goods (Article 3 ASCM). Discovering export subsidies through a WTO dispute settlement proceeding in accordance with the Dispute Settlement Understanding (DSU) by itself, without showing adverse effects or serious prejudice, enables the claimant member state to take retaliatory measures upon authorisation by the WTO Dispute Settlement Body (DSB) (Article 4 ASCM). An illustrative list of export subsidies is attached to the ASCM as Annex I and identifies 12 measures that constitute export subsidies.

Second, all other specific subsidies are "actionable," which means that they are subject to countervailing duties (CVD). An importing WTO member state can initiate investigations on behalf of the domestic industries in order to determine whether the subsidies on imported goods provided by another WTO member state caused or can cause adverse effects to the domestic industries. As set forth in the ASCM, a WTO member state can impose CVD duties against goods imported from another member state only when its investigating authorities determine the existence of specific subsidies that cause or threaten to cause injuries to domestic industries. If these three factors are satisfied, the importing WTO member state may impose CVD on the subsidised foreign goods (Articles 5–7 ASCM). On the other hand, the latter WTO member state can file a case to the WTO against the former member state, if it considers the measures in question as excessive or inconsistent with the relevant WTO provisions.

It is true that the WTO dispute settlement mechanism is facing a serious threat because the United States has continued to block the appointment process for vacant seats in the AB since 2017, based mainly on its criticisms against the AB's "overreach" and inappropriate interpretations (see Kobayashi, 2019). This electoral sabotage is expected to make the AB dysfunctional due to a membership shortage as early as by December 2019. However, this does not mean that the WTO dispute settlement mechanism is losing the faith of its member states. There are more than 10 cases that have been appealed after 2017, which are pending at the AB; 2 of these were appealed by the United States. In this sense, the thrust of the AB's "crisis" has more to do with political tactics than legal significance, which will not affect the arguments of this paper.

A history of WTO dispute settlement in the shipbuilding sector

In principle, WTO subsidy rules apply to all member states and to all Arctic Council countries to the same extent as the rest of the world. ASCM covers all goods from shampoo to ships except for agricultural products. Heavily subsidised sectors that have larger economic impact are prone to be subject to dispute regarding their consistency with the ASCM. The shipbuilding industry has long been considered a strategically important heavy industry. Governments are willing to invest in and support the launch and development of domestic industries.

One recent dispute partly involving vessels destined for tanker use in the Arctic region is the *Korea—Measures Affecting Trade in Commercial Vessels (Japan)* case (DS571), which was filed on 13 November 2018 (WTO, 2018b). Japan complained that Korea's extended provision of subsidies to shipbuilding companies constituted export subsidies and/or countervailable subsidies. Japan questions all Korean support schemes for the restructuring of DSME since 2015, either directly governmental or provided through public or private entities. The results of this case will affect vessel production and operation in the Arctic regions. As of the end of August 2019, bilateral consultation is ongoing.

Regarding previous WTO dispute settlement cases involving the shipbuilding industry, in the early 2000s, Korea and the European Union (EU; then, the European Community (EC)) fought three WTO shipbuilding subsidy disputes filed against each other from both sides. One of them, *EC—Aid for Commercial Vessels*, ended in the consultation phase (DS307) (WTO, 2004a), and the other two cases ended based on panel reports without recourse from the appeal mechanism (DS273 and DS301) (WTO, 2005a, c). First, in the case of Korea, the panel report on *Korea—Measures Affecting Trade in Commercial Vessels* (DS273) found certain loans and guarantees to be inconsistent with the ASCM; specifically, some of the advanced payment refund guarantees and pre-shipment loans granted by the official export credit agency export subsidies were found to be illegal—not by and of themselves ("as such")—but in the manner they were provided ("as applied") (WTO, 2005a). Korea did not file an appeal with the AB for review because "even with that flawed methodology, the Panel had only found a limited number of instances of subsidization" (WTO, 2005b, paras. 3 and 4). In other words, Korea was satisfied with most of the panel's factual findings and the overall outcome of the legal findings although it disagreed with the panel's interpretation of ASCM.

Second, in the case of the EU, several EU member states granted state aid exclusively to domestic shipbuilders in accordance with the EU's relevant regulation designed to induce Korea to stop subsidising its shipyards. In *EC—Measures Affecting Trade in Commercial Vessels* (DS301), the panel found the subsidies to be consistent with the national treatment requirement as well as most-favoured-nation treatment because giving subsidies only to domestic industries is specifically allowed in Article III:8(b) of the GATT. On the other hand, the panel found the EU regulation, as well as individual measures based on the regulation, inconsistent with Article 23.1 DSU because the EU enacted and applied the

https://doi.org/10.1017/S0032247419000524 Published online by Cambridge University Press

regulation without asking the DSB for authorisation to take retaliatory actions (WTO, 2005c). The EU also decided not to appeal although it expressed disagreement with the panel's finding on the textual interpretation. The EU stated that the inconsistent measure had already expired by the time the panel report was circulated, and "the question had now become theoretical, and the EC did not wish to overburden the Appellate Body and the dispute settlement system" (WTO, 2005d, para. 52).

It is uncertain why both parties did not appeal in these cases considering that more than two-thirds of panel reports had been appealed at that time, particularly for the high-stakes cases. The most reasonable explanation is that the losing parties were wary of the risks of another loss in the appeal phase in which the AB's findings would have quasi-precedential impact thereafter, precisely because the stakes were high. Nevertheless, interpretations of the ASCM provisions on export subsidies in the shipbuilding sector are inconsistent. Can these WTO rules mitigate concerns over excessive export competition by applying existing rules? Let us look at two recent disputes that involved the application of WTO provisions over prohibited (See "Vicious cycles in the WTO Boeing–Airbus dispute" section infra) and countervailable subsidies (See "Industry-wide change brought by the initiation of a CVD investigation" section infra).

Searching for viable options: The potential role of trade agreements

Unintended consequences of WTO dispute settlement

Vicious cycles in the WTO Boeing–Airbus dispute

There are valuable lessons to be learned concerning the application of the detailed subsidies rules and the dispute settlement mechanism under the WTO from past practice in the civil aircraft sector.

Like the shipbuilding industry, the civil aircraft industry is another heavy industry that is categorised as strategic by several countries. Until recently, the civil aircraft sector was compartmentalised. The term "large civil aircraft" was typically used to refer to aircraft with 100 or more seats produced only by Boeing and Airbus; smaller aircraft—also known as regional civil aircraft—are produced by Bombardier, Embraer, and a few other manufacturers.

A relatively small number of companies are involved as competitors and are heavily subsidised. Thus, there are a number of long-lasting WTO disputes in the aircraft sector. One of them is the Embraer–Bombardier dispute between Canada and Brazil, which has been ongoing since 1996 (DS46, DS70, DS71, DS222, and DS522). Another series of dispute, which was between the United States and the EU, has been ongoing since 2004 (DS316, DS317, DS347, DS353, and DS487).

Among these disputes, the so-called "Boeing-Airbus dispute" between the United States and the EU is the largest in terms of retaliatory measures and is a typical example of the limits of WTO rules and the dispute settlement mechanism involving strategic heavy industries. The author does not underestimate the impact of disputes between Canada and Brazil. However, the sale of a major product line from Bombardier to Airbus in 2017 and the planned quasi-takeover of Embraer by Boeing in 2019 (see "Industry-wide change brought by the initiation of a CVD investigation" section) significantly reduce the presence of Embraer and Bombardier and the dispute between them, making it more or less be integrated into part of the Boeing–Airbus dispute between two super-duopoly companies.

Airbus Industrie (hereinafter, Airbus) is a consortium composed of companies in France, Germany, Spain, and the United Kingdom. Boeing and Airbus formed a duopoly in 1992 based on a bilateral deal between the United States and the EU (then, the EC). On 6 October 2004, the United States requested a consultation under the DSU against the EU alleging that the EU and the aforementioned member states had provided illegal, prohibited, or countervailable subsidies under the ASCM for the production of most of the Airbus's aircraft including its flagship models such as the A340 and the A380 (WTO, 2004b). On the same day, the EU requested a consultation with the United States alleging that the United States and several of its states provided illegal subsidies for the production of the 7E7 (WTO, 2004c). Both disputes, along with several derivative disputes, underwent amendments to the complaints, a formal request for the establishment of the panel, panel proceedings, and AB proceedings. Among others, in the course of the compliance proceedings under Article 21.5 DSU, the United States successfully added later developed models such as the A350XWB into the scope of the complaint, and the product code 7E7 was later renamed as 787.

In the end, contested measures taken by both sides were found to be at least partially inconsistent with WTO rules prohibiting export subsidies (WTO, 2011a, 2012a). Once the respective AB reports were adopted by the DSB, the United States and the EU pledged to comply with the rulings in due course (WTO, 2011b, 2012b). However, both parties continued the legal feud by filing complaints against each other under Article 21.5 DSU claiming that the other party had failed to comply with the rulings. The AB found that both sides had failed to comply with the rulings in May 2018 (concerning the EU's modified measures) and in March 2019 (concerning the United States' modified measures) (WTO, 2018a, 2019a).

Currently, the United States is asking the arbitrator under Article 22.6 DSU for a calculation of appropriate amounts of retaliatory measures against the EU, which will take until the end of 2019 (WTO, 2018c). In April 2019, the US government announced its intention to impose retaliatory tariffs of up to US $11 billion against EU products (USTR, 2019), although the EU disagrees with the counting (Miles, 2019). In the no-so-distant future, the EU is expected to file the same arbitration proceeding to calculate the limit of retaliatory measures against the United States.

The panels and the AB clarify the interpretation of the ASCM with substantial implications for the shipbuilding industry. Among others, the AB ruled that the granting of a subsidy is "tied to actual or anticipated exportation or export earnings" under Article 3.1 ASCM if it is "geared to induce the promotion of future export performance" (WTO, 2011a, para. 1044), and it is therefore prohibited in and of itself (See "WTO rules regarding prohibited and countervailable subsidies" section). A determination of such *de facto* export subsidies must be based on the analysis of overall factual circumstances, not just by the government's subjective anticipation. Additionally, the AB found that a major portion of the "launch aid" to Airbus, including infrastructure measures and extended financing arrangements, adversely affected Boeing's sales (WTO, 2011a, para. 1412).

However, without considering the details of the legal and factual findings that emerged during the lengthy proceedings, the above-mentioned substantive WTO rules and dispute settlement procedures were not sufficient to settle the Boeing–Airbus dispute and prevent it from continuing for 15 years. Under the DSU, (i) it takes two or more years to adjudicate on a contested measure; (ii) the winning party cannot obtain monetary compensation for

https://doi.org/10.1017/S0032247419000524 Published online by Cambridge University Press

damages caused by the past wrongdoings of the losing party, only prospective retaliation against a continued failure to comply with the ruling by the end of its implementation period; and (iii) it takes three or more years to obtain the grant for retaliation.

Imagine that the United States obtained authorisation to retaliate against the EU in the *EU—Aircraft* case. However, some of the target aircraft, such as the A350XWB, have already established their commercial presence in the market, while others, including the A380, have ceased production or will soon cease to be produced, which diminishes the impact of retaliatory measures significantly.

On the whole, WTO dispute settlement proceedings are not always the best way to regulate excessive government support. Even the CEO of Airbus noted that only lawyers of both sides benefit from the dispute although Airbus is finally in an advantageous position against Boeing (AFP, 2019).

Industry-wide change brought by the initiation of a CVD investigation

If prosecuting other WTO member states that offer prohibited subsidies is not a feasible option, can a member state effectively counteract trade-distorting foreign subsidies by employing CVD measures?

As is shown above (see "WTO rules regarding prohibited and countervailable subsidies" section), WTO member states can impose CVD measures in order to protect domestic producers from actionable subsidies granted by other governments. However, these measures may bring unintended impacts to domestic industries and the global industry as a whole. A good example in this context is the dispute between Bombardier and Boeing since 2016 that involves the CVD investigation by US investigating authorities into the Canadian government's subsidies to Bombardier.

As mentioned in the previous subsection, Boeing and Airbus have enjoyed global duopoly status in the large civil aircraft market since the early 1990s. However, Bombardier entered the large civil aircraft market by launching its "C Series" jets with 100 to 150 seats in 2008. Next, Bombardier announced its first contract with a US airline to sell C Series jets in April 2016. The C Series jets directly competed with Boeing's 737 MAX jets, which sold poorly (Gates, 2019) and are expected to continue poor sales due to design defects in 737 MAX 8 jets that have caused several fatal crashes recently.

In response, Boeing filed a petition to the US Department of Commerce (USDOC) to initiate CVD and anti-dumping (AD) investigations against Canadian aircraft makers in April 2017, and the USDOC reacted affirmatively in May 2017 (USDOC, 2017a). The investigation, in essence, targeted Bombardier because the company is the sole producer of the subject merchandise in Canada. In accordance with the US domestic law, investigative functions were allocated to the US International Trade Commission (USITC) for injury analysis and the USDOC for subsidy analysis, both in the preliminary and the final determination phases.

USITC, an independent administrative agency, issued an affirmative preliminary determination on injury on 12 June 2017, followed by the USDOC's affirmative preliminary determination on the existence of dumping and subsidies on 25 September 2017. After that, USDOC maintained its affirmative finding in the final determinations on 27 December 2017 (USDOC, 2017b), which proposed imposing CVD duties of up to 212% along with AD duties of up to 79% against each imported C Series aircraft. However, the USITC flipped its injury analysis in the final determination issued on 26 January 2018 (USITC, 2018), which finally deprived the US government of options to impose CVD (or AD) duties against Canadian planes.

USITC's final negative determination was a surprise for the US government, Boeing, and trade experts as well (Shepardson, Ljunggren, Lampert, & Wise, 2018, para. 10). However, what was striking was the impact of the investigation itself. In October 2017, shortly after the affirmative preliminary determinations on subsidies and injury by the USDOC and the USITC, respectively, while waiting for the hearings on their final determinations, Bombardier sealed a contract with Airbus to sell the entire C Series aircraft project to Airbus. Presumably, Airbus plans to shift the production site of the C Series at least partially to the United States, which would eliminate the risk of AD/CVD duties imposed by the US government (Tomesco, 2018). In retrospect, this CVD investigation against Bombardier brought significant benefits to Airbus.

On the other hand, in July 2018, Boeing announced a plan to form a joint venture with Embraer based on the entire takeover of Embraer's aircraft business (Cox, 2018). After surviving the legal battles in the Brazilian courts, the planned joint venture cleared legal hurdles in Brazil in February 2019, awaiting approvals from US anti-trust agencies (Cox, 2019). Presumably, Boeing was forced to make a protective move against Airbus in order to increase its product scope. In retrospect, this CVD investigation initiated by US authorities on behalf of Boeing took an unintended path and triggered a drastic change in the entire aircraft industry (Gates, 2017).

The two cases discussed in this subsection demonstrate that WTO subsidy rules, regardless of their enforceability, do not work as intended by their proponents. It is true that any WTO member state can file a case against another in front of the WTO panel and the AB in anticipation of eliminating prohibited subsidies. It is also true that WTO member states are authorised under the ASCM to conduct CVD investigations to prevent adverse impacts of foreign subsidies on domestic industries. However, in the two cases shown above, exercising these rights did not solve international disputes as intended.

Proposal to use trade agreements that allow export subsidies to achieve higher environmental standards

Efforts conducted to improve or supplement WTO rules

If existing WTO rules do not provide effective solutions to the disputes, can we improve these rules?

At the conclusion of the GATT Uruguay Round of 1994, which led to the creation of the WTO, there was a common understanding among negotiators that these subsidy rules would not be fully capable of encompassing all types of government support. Particularly for shipbuilding and shipping industries, government support is, in many cases, subtle and difficult to detect. Among others, the loans and credits provided by private financial institutions on its face but, in reality, under the indirect direction of the government have long been a major issue of concern. Therefore, since 2001, WTO members have held discussions to clarify and improve fishery subsidy rules as part of the Doha Round negotiations on rules. The topics of discussion include the prohibition of environmentally harmful shipbuilding subsidies. Up to now, negotiations have progressed slowly without clear outcomes.

Originally, Paragraph 6 of the Doha Ministerial Declaration 2001 declared that the "aims of upholding and safeguarding an

https://doi.org/10.1017/S0032247419000524 Published online by Cambridge University Press

open and non-discriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive" (WTO, 2001). Trade restrictions on primary energy sources including petroleum and natural gas are generally exempt from the basic rules. Moreover, negotiations to launch the Environmental Goods Agreement have continued for a decade with the participation of 46 countries including all the Arctic and major shipbuilding countries excluding Russia. The aim of the agreement is to reduce the customs duties on environmentally friendly goods, which would normally include vessels. However, there are no multilateral rules or formal negotiations to cover safety with regard to transportation facilities, and this renders the WTO rules less viable in the context of sustainable development in the Arctic region.

To supplement multilateral rules such as WTO and GATT, the OECD has taken the initiative to address the adverse inferences of export subsidies, export credits, and export credit guarantees in manufacturing sectors since the 1960s (Coppens, 2014, para. 350). The OECD's Working Party on Shipbuilding (WP6) developed schemes to establish normal competitive conditions in the global shipbuilding industry. However, the binding Agreement Respecting Normal Competitive Conditions in the Commercial Shipbuilding and Repair Industry of 1994 is yet to take effect. Moreover, the subsequent Arrangement on Officially Supported Export Credits remains a "gentlemen's agreement" (OECD, 2019a, para. 10). The arrangement contains the Sector Understanding on Export Credits for Ships, which outlines numerical guidelines to cap government support of the shipbuilding sector such as the maximum extent of government shipyard credits by numerical standards. These standards include a maximum repayment period and minimum interest rates (Tusiani, 1996, para. 23). Nevertheless, it is non-binding, and participants are limited to Australia, the EU, Japan, Korea, New Zealand, and Norway as of August 2019. An *ad hoc* Special Negotiating Group established afterward by the OECD invited several non-members such as China to the negotiations. However, the group has been stalled for a decade with no outcomes (Pagani, 2008, para. 20).

Another option would be regional trade agreements in accordance with Article 24 of the GATT and/or Article 5 of the General Agreement on Trade in Services. For example, part of the Doha Round draft text was incorporated into regional trade agreements such as the Trans-Pacific Partnership (TPP). More specifically, Article 20.16(5) of the TPP sets forth that "no Party shall grant or maintain any of the [. . .] subsidies provided to any fishing vessel [. . .] for IUU fishing" (footnotes omitted). This phrase was taken from texts regarding negotiations on fisheries subsidies and was later incorporated in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (so-called TPP11) without modification. Applying these phenomena to the Arctic region, an agreement by a small group of countries not to subsidise substandard vessels or vessel operations is an option for ensuring the safety of the Arctic region. This would be far easier to achieve than agreement on a rule by all of the Arctic Council members. However, to form a legitimate regional trade agreement, all trade must be substantially covered.

Finally, global rules are not always a preferable option to address a rapidly changing business environment. In terms of sustainable development in the field of Arctic transportation, smaller settings than that of the OECD's 36 members would be more conducive to the setting of effective rules and would make the process easier and more manageable. Regardless, for vessels that operate in the Arctic region, any rule without China's involvement would have a significantly smaller impact in terms of its effectiveness.

The role of critical mass agreements on export subsidies for the sustainable development of the Arctic region

Another option that is attracting growing attention is critical mass agreements (Gallagher & Stoler, 2009; Winslett, 2018). The concept of a critical mass agreement is to "develop a practice where countries refrain from blocking consensus when a critical mass of countries support a proposed change" (Jackson, 2000, para. 18). Critical mass describes "an overwhelming majority of countries and an overwhelming amount of the trade weight in the world, such as 90% of both of these factors" (Jackson, 2000, para. 18). In principle, the agreed content of critical mass agreements must be applied equally to all the WTO member states (Hoekman, 2011, para. 348). The Information Technology Agreement (ITA) of 1996 was an example of a critical mass agreement within the framework of the WTO. With the ITA, participants agreed to eliminate tariffs on designated high-tech products among the parties and globally on the most-favoured-nation basis. Therefore, any WTO member state can enjoy the benefits and lodge a complaint against other ITA participants if they fail to comply with the agreement. In contrast, plurilateral agreements such as the Agreement on Government Procurement have limited applicability to the rights and obligations of parties. From the perspective of the participant countries, the key factor is to minimise free-riding; the involvement of the vast majority of the stakeholders is mandatory (Hoekman & Mavroidis, 2017, para. 404).

Critical mass agreements can be used for sector-specific market access as well as rules-related issues such as subsidies (Adlung & Mamdouh, 2017, para. 22; Harbinson, 2009, para. 13). Willing parties can create a set of rules that mutually restrict subsidies for the production of environmentally friendly large-scale vessels. The agreements also establish reliable safety standards to address the risks of the environmental harm in the Arctic region caused by excessive competition. Agreements require vessels to employ special equipment to safely navigate the Arctic Ocean. The basic rationale of this approach is a gatekeeping function to prevent shipyards from building dangerous ships.

Arguably, this is a viable option that fits the current market situation in the Arctic region. What differentiates Arctic development the most from the development of other regions is the limited capability of the shipbuilding and shipping industries to participate in the NSR market. As discussed in "Introduction" section, only a handful of shipbuilders possessed the necessary capabilities to build large-scale vessels that are navigable in the NSR area. In addition, shipbuilding companies in these countries are partially dependent on one another because none of them can build large-scale vessels destined for use in the Arctic region independently.

From a business perspective, the cost of icebreaking is significant when sailing the Arctic Ocean. For example, CEO Mikhelson of Novatek recently asked the Russian government for the elimination of value added tax (VAT) for the cost of icebreaker assistance during the transportation of LNG (The Arctic, 2019b). Mikhelson claimed that icebreakers are used as part of LNG export operations that are already VAT-free to ship abroad and that VAT-free treatment of icebreaker assistance would facilitate investment in R&D to the LNG industry. Korean shipyards have introduced icebreaking or ice-faring functions from Nordic companies, and the Chinese will soon follow (Hong, 2018, para. 8).

https://doi.org/10.1017/S0032247419000524 Published online by Cambridge University Press

Furthermore, complicated R&D and sophisticated manufacturing processes render government support a virtually indispensable element for each competitor. Without small group agreements, these countries will eventually enter WTO disputes that will take at least three to four years to resolve and potentially end without fruit.

Thus, a possible agreement may consist of (i) an agreement to ban shipbuilding subsidies that hamper healthy competition, which are still outside the coverage of existing WTO rules and (ii) an agreement to mutually allow incentive programs to develop and produce ships that have superior environmental performance (green ships) and shipping services. Environmentally friendly goods and services would include fuel-efficient ships as well as low emission operation systems and fail-safe mechanisms to prevent shipwrecks. Regarding operation systems, Japan reportedly made a similar proposal at the WP6 meetings to modify the OECD Sector Understanding on Export Credits for Ships and allow more flexible export credit financing for green ships (Morishige, 2014, para. 17).

Notably, the inclusion of China as a party is crucial to ensure the effectiveness of any measures. In this context, ostensibly, Chinese shipbuilders receive significant government support. Commentators have already pointed out that the Chinese government incentivises foreign ship owners or operators by providing preferential treatment to the purchasers of Chinese ships by way of financial support from government-linked financial institutions (Gray, 2018, paras. 33 and 34; Thompson, 2014). Although China is not subsidising its shipyards, it subsidises customers of Chinese ships; these subsidies, which are known as "official financing support" or "pure cover support," or any combination of the two, can indirectly reduce the cost of purchases (OECD, 2019b, para. 33). This type of support can be considered as a *de facto* export subsidy, which is prohibited under Article 3.1 ASCM, if it is found to be "geared to induce the promotion of future export performance" (*EC—Aircraft* case, see "Vicious cycles in the WTO Boeing–Airbus dispute" section).

Although China strongly prefers bilateral negotiations on Arctic issues (Young, 2016, para. 118), setting rules on a smaller scale for this particular market structure would be preferable than negotiating rules in a larger forum, such as the OECD or WTO, or fighting lengthy legal battles within the WTO framework. In addition, such agreement can prevent excessive subsidy competitions because Korea is also willing to support its shipbuilders by subsidising the purchase of goods that were transported through the NSR (Jin, 2016–17, para. 95), and it is not surprising that Japan is also considering doing the same. In the long run, exhausted private shipyards will benefit from this agreement.

Facilitating the production of environmentally friendly vessels fits the policies of coastal states in the Arctic region. For example, in April 2019, Russian President Vladimir Putin stated that shipbuilders and carriers should be encouraged to use environmentally friendly fuels including LNG (The Arctic, 2019a). Building cargo or tankers that run on LNG would require further technological sophistication and further government support. Any state would rather avoid vicious cycles of hostile—and therefore less effective—subsidy provisions.

Conclusions

Although the Arctic is emerging as a promising region for energy development and maritime transportation, navigational safety has become a major concern because even a single oil leak or shipwreck incident by large-scale vessels can cause irreparable harm to the entire region. Capital-intensive heavy industries such as shipbuilding require government support to launch and maintain productivity, particularly in highly competitive market conditions. However, excessive export competition will soon lead to over-production and dumped exports of substandard vessels. Assuming that even a single incident in the NSR could have a disastrous impact on the flora and fauna of the entire Arctic region, the potential use of substandard vessels represents a significant risk to the environment.

This paper explored new approaches to the question of how—and to what extent—trade agreements can alleviate the aforementioned environmental risks in the Arctic region. Our analysis illustrated several legal options for the use of international trade rules to benefit sustainable development in this area. There is no single panacea that will mitigate the potential risks of environmental harm created by booming economic activity. Multiple legal frameworks such as environmental regulations, investment regulations, and trade agreements should be used in a mutually supportive manner.

In terms of trade agreements, the WTO has established detailed rules with an effective dispute settlement system. However, past practice has proven that the WTO cannot fully provide us with a salient success story. Neither the Doha Round negotiations nor OECD sector-specific negotiations can do so. In this context, this paper tested the waters by describing the potential role of critical mass agreements among a few competing countries as an alternative approach. This is just a start, and we need further discussions and analyses to elaborate on this option and find solutions for the longer horizon. Prompt action is required because the risk of environmental hazards in the Arctic region is a clear and present danger.

Acknowledgments. The author thanks Akiho Shibata, Romain Chuffart, and participants to the PCRC 4th Symposium held at Kobe University in December 2018. In addition, the author acknowledges the efforts of two anonymous reviewers and the editors who provided constructive comments on earlier versions of this work. This work was supported by JSPS KAKENHI Grant Number 19K01310. All errors are mine.

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