



The Moral Limits of Market-Based Mechanisms: An Application to the International Maritime Sector

Jason Monios¹

Received: 15 October 2021 / Accepted: 9 September 2022 / Published online: 21 September 2022
© The Author(s), under exclusive licence to Springer Nature B.V. 2022

Abstract

This paper questions the dominance of market-based mechanisms (MBMs) as the primary means of climate change mitigation. It argues that, not only they are unsuccessful on their own terms, but also they actually make the task more difficult by the unintended consequence of normalising the act of polluting and crowding out alternatives. The theoretical contribution of the paper is to draw a link between two bodies of literature. The first is the business ethics literature on the dominance of market-based rather than direct regulation, and the second is the literature on market ethics, particularly the work of Michael Sandel on how MBMs crowd out non-market norms. The empirical contribution is to use the international maritime transport sector to illustrate the way market-based regulation renders alternatives such as direct regulation and supply-side approaches invisible.

Keywords Decarbonisation · Climate change mitigation · Maritime transport governance · Environmental policy · Market ethics · Climate justice · Market-based measures

Introduction

“Efficiency is the enemy of innovation.... We cannot efficiently get ourselves out of this predicament. So we have to save the world but we have to save it in a muddled way, in a chaotic way, and also in a costly way. That is the bottom line, if you want to do it in an optimal way, you will fail”. Professor Joachim Schellhuber (Breeze, 2019).

Global anthropogenic greenhouse gas (GHG) emissions continue to grow, the 2019 level of 52.4 Gt CO₂e being 59% higher than 1990 and 44% higher than 2000 (PBL Netherlands Environmental Assessment Agency, 2020). The share of this total contributed by international shipping is increasing, from 2.76% in 2012 to 2.89% in 2018, and the total level of maritime emissions is projected to rise by anything up to 50% by 2050 (IMO, 2020). While domestic transport emissions are included in nationally determined contributions (NDCs), international maritime emissions are not;

responsibility for these was devolved to the International Maritime Organisation (IMO). Existing carbon regulations at the IMO focus only on reducing carbon emissions per tonne-kilometre via efficiency improvements, but the potential for applying market-based mechanisms (MBMs) has been under consideration for some time. Yet MBMs for maritime transport have failed on two levels. First, the forms proposed (regional emission trading schemes and very low carbon taxes) are too weak to achieve decarbonisation of the sector without additional supply-side measures. Second, despite over a decade of discussion, there is little sign of any agreement to implement them at the global level. While many studies have analysed the potential outcomes of MBMs, alternatives are rarely proposed, as solutions to climate change in the transport sector are dominated by market approaches and neoliberal governance (Schwanen et al., 2011). Equally, the policy literature on MBMs has documented many technical failures such as accurate measurement, equivalence of emissions, free permits and offsets, which, even if addressed, would not resolve fundamental problems such as the prioritisation of efficiency that locks in the existing system and disincentivises a transition away from fossil fuels (Bryant, 2017; Lohmann, 2010; Pearce & Böhm, 2014). The aim of this paper is to explore the continued attraction of MBMs to achieve decarbonisation

✉ Jason Monios
jason.monios@kedgebs.com

¹ Kedge Business School, Domaine de Luminy, BP 921,
13288 Marseille Cedex 9, France

of the maritime transport sector, despite these well-known shortcomings. This question will be explored in the context of business and market ethics, seeking to understand the continued legitimisation of market-based approaches and the exclusion of alternatives.

The analysis draws on two bodies of literature. The first is the study of regulation in business ethics, which has seen a trend away from command-and-control approaches towards voluntary regulation (Andrade et al., 2014; Bowen, 2019) and CSR (Herzog, 2015; Roth et al., 2020). Looking specifically at the regulation of carbon emissions, governments around the world are turning towards market-based solutions (Skovgaard et al., 2019) with only limited attention given to direct regulation or bans (Green & Denniss, 2018). Due to the many drawbacks of MBMs, some authors have called for renewed attention to direct regulation (Pearse & Böhm, 2014). Part of the challenge to this renewed attention is that the literature also shows how such alternatives have been depoliticised and rendered invisible. A gap in the business ethics literature was identified by Felli (2015), who argued that the reasons why some instruments reach the discussion stage and others never do has been under-addressed.

In order to fill this gap, the second body of literature used in this paper is the field of market ethics, with a particular focus on the work of Sandel (2012a), who summarised the two key objections of fairness of outcomes and corruption of norms. A body of work has looked specifically at the ethics of emission trading (e.g. Aldred, 2012; Dirix et al., 2016; O'Neill, 2007), but with few empirical applications to specific sectors. The market ethics literature will fill the gap in the business ethics literature regarding the depoliticisation of direct regulation by helping to elucidate how the dominance of market thinking has allowed policymakers to avoid difficult political decisions around environmental protection.

The primary aim here is not to expand the theory on market ethics but to use it to fill the gap in the business ethics literature raised by Felli. Nevertheless, as the existing market ethics literature focuses on the outcomes of MBMs in practice, the analysis in this paper will provide novelty by showing how these concerns also apply to the way MBMs dominate the policy discussion. Sandel's work on the crowding out of non-market norms reveals how the MBM discussion renders invisible and depoliticises alternative approaches such as direct regulation, regardless of whether the MBMs are even introduced. In this way, ongoing MBM discussions that never finish become a "discourse of climate delay" (Lamb et al., 2020).

This paper aims to make several contributions to the business ethics literature; the first being to respond to the call for more attention to direct regulation rather than market approaches to emissions reduction, the former tending to be silenced by the normalisation of market thinking in policy formulation; second, to establish a link between business and

market ethics via an empirical application of Sandel's work, showing how it is relevant not only to MBMs in practice but to the wider normalisation of market thinking that silences non-market approaches; and third, to enrich the business ethics literature with a discussion of the maritime transport sector, which enables global production and consumption networks, carrying approximately 90% of all goods, but has only rarely been discussed through the lens of business ethics.

Analysing MBMs from the perspective of both business and market ethics sheds light on the causes of the current climate policy impasse as well as pointing towards potential solutions. It reveals how the dominance of MBMs reflects the existing policy environment biased by market thinking, which entrenches existing economic power and acts as a discourse of climate delay. Making a link between the work of Felli and Sandel shows how focusing on MBMs is attractive to policymakers because it allows them to avoid difficult decisions regarding the energy transition. Accepting the failure of market-based thinking would require that policymakers consider alternative economic approaches such as degrowth that would require limits on the market, something that neither policymakers nor private firms are prepared to accept.

Regulating the Environmental Impacts of Business

From Command-and-Control to Voluntary Regulation to Markets

In the last few decades, regulation of business practices in many sectors has evolved from command-and-control approaches towards light-touch and voluntary regulation. The role of private firms as political actors (cf. Néron, 2010) has become more important in understanding these regulatory trends. Private actors have evolved from "rule takers" to "rule makers", often becoming directly involved in setting regulations, particularly through voluntary schemes (Andrade et al., 2014; Bowen, 2019). Burrell (2005) showed how firms may support or block impending regulations depending on their short- or mid-term perspective. At first their default reaction is to block or weaken regulations as unnecessary costs, but over time as it becomes clear that operational changes will be required, then, as long as the changes are the same for all and maintain a level playing field, firms can be persuaded to support regulation. A long-term perspective with clear targets and phasing in of new regulations is key to this change in perspective.

As part of understanding this setting of regulations, Felli (2015) highlights how the choice of MBMs is not merely a technical but a political decision, and arguments over

different MBMs can serve to obscure how other options never even make it to the table. In defining “depoliticisation as the power of non-decision”, Felli argues that MBMs not only enable the commodification of nature as discussed by several market critics (see later section), but, more importantly, render invisible non-market alternatives such as direct regulation that may lead the state to curtail or constrain the production choices of private actors. Other authors have also highlighted the difficulty in raising the profile of non-market alternatives in the policy debate, whereas carbon market proponents insist only on discussing potential improvements to market approaches (Böhm & Dhahi, 2011; Bryant, 2016).

Markets-Based Approaches rather than Direct Regulation or Bans

Since Nicholas Stern’s famous statement in 2007, climate change has been defined as a market failure, which embeds market approaches based on two assumptions. First, that environmental damage is something that is, was or could be included in the market; second, that the solution to market failure is more markets. Such market logic is encapsulated by the infamous memo written by Larry Summers, then chief economist at the World Bank: “the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that”. Such a conclusion rests purely on market logic whereby health or the environment can be accurately priced and hence traded: “The measurements of the costs of health impairing pollution depend on the foregone earnings from increased morbidity and mortality” (Summers, 1991: unpaginated). If one defines everything else out of the equation then such spurious logic becomes possible; once it is repeated often enough, it becomes the logic of society, as we now see with carbon markets, which are rarely compared with alternatives.

A small number of authors have raised the potential for alternative approaches, such as supply-side cuts or outright bans of fossil fuels (e.g. Green & Denniss, 2018; Le Billon & Kristoffersen, 2020; Sinn, 2012), all noting how surprisingly rarely such approaches are mentioned in official policy documents. According to Green (2018: 449), the IPCC report on “National and Sub-national Policies and Institutions” did not contain even one mention of bans.¹ Le Billon & Kristoffersen (2020) point out that it would be simpler to cut supply because there are far fewer suppliers than consumers, although they recognise several challenges with this approach such as the importance of fossil fuel production to many countries’ sovereign revenue or tax income, possibility

for leakage between countries and the policy focus on consumption rather than production.²

Supply-side cuts and bans serve a secondary normative purpose relevant to the topic of this paper, in that they contribute to maintaining or changing political norms. Green and Denniss (2018: 75) argue that “climate policies themselves, by (re-)allocating resources, creating institutions, incentivising investments and influencing culture, also affect patterns of politics and power relations in subtle but crucial ways, in turn shaping what becomes feasible in the future”. Therefore, strong climate policies can themselves influence politics and increase the acceptability of more stringent policies in the future. These points speak to the issue of policy feedback which is a large topic in its own right beyond the scope of this paper (cf. Jordan & Matt, 2014).

Green (2018: 449) argues that “fossil fuel bans are better understood to be motivated by a ‘logic of appropriateness’: by a sense of what is right, natural, expected or legitimate for an agent with a given identity in a given situation, irrespective of cost–benefit calculation. Bans send a clear signal that practices of large-scale fossil fuel exploitation are categorically wrong, and implicitly cast aspersions on the moral character of actors who engage in such practices”. He argues further that these strong policies make further policy making easier by changing the norms: “each new ban helps to redefine morally appropriate behaviour for states, and thus helps to build a global ‘anti-fossil fuel norm’ proscribing the banned activity. As the number of states banning an activity rises, the social costs of non-conformity (for instance, a tarnished international reputation) increase, making it more likely, all else being equal, that other states will adopt a similar ban” (Green, 2018: 449). Green concedes the problem of leakage, in that one country may ban it but another may take advantage by allowing it, yet argues that any carbon policy—including MBMs—entails the risk of leakage. Moreover, this serves as a further argument to select a policy that uses normative influence to increase “social costs” on other countries and hence reduces leakage, which MBMs do not. Bans are also less complex in operation than other mechanisms, not requiring the same administrative complexities of measuring, reporting, monitoring and enforcing.

The analysis of the response by DuPont to a proposed ban on freon in the 1980s by Mullin (2002) demonstrated how bans make the development of alternatives economically feasible because of the certainty that they will be needed by a known date, whereas mandated reductions do not. The important conclusion for the benefit of this paper

¹ A comparison could be made with how infrequently “fossil fuel” is used in climate policy text or events, such as COP 26. The Paris agreement does not use the word at all.

² The Fossil Fuel Non-Proliferation Treaty is an initiative that aims to reach an international agreement to limit production of fossil fuels in an analogous manner to the limitation of nuclear weapons, including not just stopping any new projects but a feasible phase-out and a just transition.

was showing how companies waver in their position over time. Their initial reaction is to prevent such regulation, but if they see that it is unavoidable then they want the opportunity to treat it as a positive and be a global leader in new product development. This links with the short- and long-term views as discussed above by Burrell (2005) and also the role of policy feedback (Green, 2018; Jordan & Matt, 2014). Drawing on the arguments of Felli (2015) on depoliticisation, MBMs must, therefore, be viewed not only in terms of their direct outcomes but in terms of the role they play in policy feedback and sending a clear message so that firms can switch their perspective to a long-term view of transitioning away from fossil fuels.

A gap in the business ethics literature on regulation was identified by Felli (2015), who argued that the reasons why some instruments reach the discussion stage and others never do has been under-addressed. Felli (2015: 64) argues for the need of a more politically informed analysis of the dominance of MBMs, pointing out that “the choice of policy instruments is itself highly political and should not simply be understood as a mere technical device designed to implement a given policy”. In order to understand why market-based approaches are normalised and others rendered invisible, the dominance of market thinking in politics needs to be considered. Thus in the following section, the literature on market ethics will be reviewed, in order to identify how an understanding of the moral limits of markets in general, and the work of Michael Sandel on the crowding out of non-market norms in particular, can be used to elucidate how this process of rendering direct regulation invisible occurs in the policy process.

The Work of Michael Sandel and Others on Market Ethics

Michael Sandel on the Moral Limits of Markets

As pointed out by several authors (e.g. Bruni & Sugden, 2013; Choat, 2018; Qizilbash, 2019; Satz, 2010; Wempe & Frooman, 2018), the idea of moral limits to markets has been developed by a number of authors before Sandel (2012a). These earlier authors include Walzer (1983), MacIntyre (1984), Radin (1986), Anderson (1993), Satz (2010) and even Sandel’s (2010) earlier book on justice. Sandel had in fact been working on this material for some time, with early versions in 2000 and 2005 before the book-length treatment in 2012.

Several authors (e.g. Besley, 2013; Qizilbash, 2019; Wempe & Frooman, 2018) point out that none of these authors developed a systematic approach for determining, first, which goods are not suitable for market distribution, and second, what alternative method of allocation should

be used (e.g. lottery, queue, rationing). Sandel (2012b: 92) argues that it is not possible to produce “a general principle that can tell us, once and for all, which goods should be bought and sold on the market”. Many criticisms of Sandel relate to a lack of evidence that any alternative would be better or a proposed method to select the alternatives. In the case of emissions, however, there is an alternative that does not require allocating emissions, which is to ban emissions of carbon by a certain date and leave the technical responses to the market.

The earlier authors discuss the issues of value and community with less acute focus on specific forms of justice as in Sandel’s approach. Sandel also draws on important work on the questions of agency and inequality in markets as well as commodification and influencing social and political norms by authors such as Kanbur (2001) on obnoxious markets and Roth (2007) on repugnant markets. The reason for using Sandel’s work as the primary analytical lens for this paper is its strength in problem description, focus on justice, and the link to other work on the ethics of emission trading.

Sandel (2012a) identifies three key negative outcomes from the extension of markets in previously non-marketised areas. The first is that the result may be unfair (e.g. poor people can’t get access to healthcare, tickets for concerts are bought by scalpers and corporates who even leave seats empty, lobbyists buy influence): “market choices are not free choices if some are desperately poor or lack the ability to bargain on fair terms” (112). The second is that the result may actually be less effective than a non-market mechanism (e.g. blood donations are higher when people do it for free, more rather than fewer parents leave their children at child-care after hours when they pay). The third objection is that they can corrupt the social norms (e.g. even after the child-care fee was taken away, the behaviour of leaving children after hours remained): “markets are not mere mechanisms; they embody certain values. And sometimes, market values crowd out non-market norms worth caring about” (113). Sandel later summarises these three objections into two: the fairness objection (some have called this Rawlsian) and the corruption objection (some have called this Aristotelian). He writes: “The fairness objection asks about the inequality that market choices may reflect; the corruption objection asks about the attitudes and norms that market relations may damage or dissolve” (110).

While Sandel’s work does not focus on any one area, he does make some specific comments on the application of his objections to environmental pollution, and briefly discusses the difference between a carbon tax and an ETS. Regarding the former, he makes a distinction between a fine (e.g. set limits and fine companies that exceed them) and a fee (buying pollution permits or paying a tax): “The second approach says in effect that emitting pollution is not like littering but simply a cost of doing business. But is that right? Or should

some moral stigma attach to companies that spew excessive pollution into the air?" (Sandel, 2012a: 72). He writes that "a tax on emissions can be seen as a fee rather than a fine; but if it's big enough, it has the virtue of making the polluters pay for the damage they inflict. Precisely for this reason, it is politically difficult to enact" (76).

Regarding emission trading schemes, Sandel says that "Letting rich countries buy their way out of meaningful changes in their own wasteful habits reinforces a bad attitude—that nature is a dumping ground for those who can afford it. Economists often assume that solving global warming is simply a matter of designing the right incentive structure and getting countries to sign on. But this misses a crucial point: norms matter" (2012a: 76). Some years earlier, in fact, at the time of the Kyoto talks in 1997, Sandel wrote an opinion piece in the *New York Times*, in which he raised three objections to emission trading schemes: "First, it creates loopholes that could enable wealthy countries to evade their obligations.... Second, turning pollution into a commodity to be bought and sold removes the moral stigma that is properly associated with it. If a company or a country is fined for spewing excessive pollutants into the air, the community conveys its judgement that the polluter has done something wrong. A fee, on the other hand, makes pollution just another cost of doing business, like wages, benefits and rent. The distinction between a fine and a fee for despoiling the environment is not one we should give up too easily.... A third objection to emission trading among countries is that it may undermine the sense of shared responsibility that increased global cooperation requires" (Sandel, 1997: unpaginated).

Sandel (2012c) later responded to critiques from economists attempting to define his objections as out of scope (see the 2012 special issue in the *Boston Review* as well as later critics, e.g. Besley, 2013; Qizilbash, 2019). Such critics variously claim that markets are neutral by definition and therefore do not impose values, that markets can be designed better, or that Sandel's objections are not new since many heterodox economists have similar critiques of markets, while ignoring the empirical facts of currently existing markets and market-based mechanisms that have major flaws and show no signs of being fixed.

The Ethics of Emission Trading

While market ethics is a large field of research, a few authors have specifically applied these concerns to emission trading markets and the commodification of carbon. Critics of the marketisation of emissions include Goodin (1994), Frey (2000), Dobson (2003), O'Neill (2007), Randalls (2010), Spash (2010), Aldred (2012) and Sandel (2005, 2012a), who all point out in various ways the problems that arise by putting a price on previously priceless things such as

the environment. These problems include the importance of who does the reducing (e.g. the "buying indulgences" argument of Goodin), crowding out of the genuine value of the environment and reducing the responsibility of stewardship. Those who defend market-based mechanisms against these criticisms include Caney (2010), Page (2011) and Dirix et al. (2016).

Dirix et al. (2016) summarised all of these positions and authors, including Sandel. Drawing also on Caney and Page, they identify five objections, split into two groups. The first group is the commodity-centred objections, divided into the 'non-ownership argument' and 'the price argument', which object to commodifying or putting a price on something that should not be priced, in this case the environment. The second group is the person-centred objections, divided into 'the crowding-out argument', 'the fine/fee argument' and 'the civic responsibility argument'. The market proponents conclude that all the practical objections about unfair or undesirable outcomes (e.g. fraud, offsets, financialisation, negative impact on developing countries) can be dealt with by improving the design of the system (e.g. auction rather than free permits, a price floor, limiting financialisation, protecting developing countries). More crucially for the discussion in this paper, such authors continually define the moral objections as out of scope, insisting that the trading system is only a means to an end and does not ascribe value, thus ignoring the examples given by Sandel and others of how markets do influence values.

Market-Based Mechanisms (MBMs)

Definitions and Types of MBMs

There are two main types of MBM: emission trading schemes (ETS), sometimes known as cap-and-trade, and carbon taxes. The two may even apply simultaneously, as well as in the presence of other non-market regulations such as technology standards or subsidies. The market ethics literature (see above) usually discusses only emission trading schemes as MBMs. A carbon tax can be considered more correctly as a financial mechanism which does not create a market, even though it does influence the market as a Pigouvian tax. Both can at least be considered as methods of carbon pricing (Skovgaard et al., 2019). Given that all the literature in the maritime transport sector considers both as MBMs, both will be discussed in this paper.

An ETS is based on the concept of cap-and-trade, whereby an annual cap of emissions is set for a sector or region and permits for this amount of emissions are issued and/or auctioned to all the companies or installations covered by the scheme. Any organisation wanting to emit more than the amount of permits they possess must purchase

permits from others who no longer require them because they have reduced their emissions. Some schemes allow trading of permits with those from other schemes and some require permits to remain within the scheme. One of the more contentious issues is that some schemes allow the purchasing of offsets through the Clean Development Mechanism (CDM) administered by the United Nations Framework Convention on Climate Change (UNFCCC³). The CDM allows polluting firms to invest in clean technology (usually in the Global South) to earn Certified Emissions Reductions (CER) which can then be used in place of permits in an ETS (usually only up to a defined level). Similar voluntary investments are also possible, that cannot be used in an ETS but nevertheless allow companies to claim to be carbon neutral (Böhm et al., 2012).

Bigger (2017: 516) charted the history of ETSs from the 1970s when a “general antipathy towards traditional regulation was growing along with belief that markets are always the most efficient means of organising society”. In the following decades, such approaches became more common until the 2000s “where the approach could be said to be hegemonic across much of the world, led by initiatives such as the European Union Emissions Trading Scheme”. Several authors identify the key year as 1997, when the Clinton administration demanded the inclusion of carbon trading in the Kyoto Protocol.

The European Union (EU) ETS is particularly relevant to this paper, given that it is set to include maritime transport from 2023. The EU ETS was established in 2003 and has proceeded through several periods: 2005–7, 2008–12, 2013–2020, and the current period will run 2021–2030. While strengths identified included simply establishing the system, the plans to steadily reduce the cap and the earning of €17bn in auctions during 2012–2016 to spend on carbon reduction (Narassimhan et al., 2018), the majority of issues highlighted in previous studies have been negative. These include the fact that it only covers 50% of EU emissions, the allocation of far too many free permits that amounted to a windfall of billions of euros for emitters such as power companies, trades of permits for profit and financialisation of the system, the collapse of the carbon price in 2013, and many instances of fraud (Corporate Europe Observatory, 2014; Lohmann, 2010; Narassimhan et al., 2018; Vlachou & Pantelias, 2016). Larger structural issues concerned the fact that in the first and second phases, in which emission allowances were determined bottom-up from each country, and 97% of permits were given for free, which they could then sell, the result was a large transfer of wealth to these large emitters

(Moore & Jordan, 2020), which amounted to continued subsidies to polluters which disincentivised emissions reduction (Corporate Europe Observatory, 2014). Some studies suggest that the EU ETS saved 1.2 billion tonnes of CO₂ between 2008 and 2016, amounting to 3.8% of EU emissions (Bayer & Acklin, 2020), while others claim that such reductions were not due to the ETS but to the global financial crisis and existing regulations (e.g. engine standards) (Corporate Europe Observatory, 2014). The EU ETS carbon price dropped to its lowest value of €2.81 per tonne of carbon in 2013 due to oversupply of free permits but recovered after the 2018 reform and anticipation of stricter caps in the future to reach over €50 for the first time in 2021.

The second main type of MBM is carbon taxes. There has been less research on carbon taxes because they are both less popular and less complex than ETSs. While a tax is less complex to administer, the primary problem is the political difficulty of setting a sufficiently high price to influence action. According to Krugman (2018: unpaginated), “claims that a carbon tax high enough to make a meaningful difference would attract significant bipartisan support are a fantasy at best, a fossil-fuel-industry ploy to avoid major action at worst”. Several countries do in fact have carbon taxes; for example, Sweden has a carbon tax that is levied on all fossil fuels, which started at 23€ per tonne in 1991 and in 2020 was 110€ per tonne. The focus in this paper is the challenge of specific sectors such as maritime transport which is not included in country targets hence needs a solution and also exhibits the ability to be taxed specifically, e.g. on bunker fuel purchases.

Technical and Fundamental Challenges of MBMs

Bigger (2017) identified three technical challenges that could prevent the successful operation of an ETS: lack of participants in the market (generally not a problem for large markets like carbon markets), limitations in making the natural object fungible and substitutable and the regulatory nature of the market. The latter includes political uncertainty and the overlap with non-market regulations, as well as regulatory limits on the market such as maximum permit holding or price controls that limit market functionality and liquidity. Part of the challenge in making the natural object fungible is the huge measurement issues. Cooper (2015: 1795) points out the role of assumptions in establishing trading schemes, which include: “(1) that the activities that produce emissions are equivalent in kind; (2) that a unified measure of emissions is available; and (3) that the volume of emissions generated by each firm is known. However, none of these assumptions holds true in the absence of a coordinated metrological system”. The over-allocation of free permits leading to huge wealth transfers to large emitters was noted above as a problem in early phases of the EU

³ The UNFCCC (signed 1992, entering into force 1994) was the forerunner of the annual COP meetings (starting 1995), the Kyoto Protocol (1997, entering into force 2005) and the Paris Agreement (2015).

ETS (Moore & Jordan, 2020). Not all markets allow offsets, but those that do allow use of the CDM involve major risks of errors in accounting practices, periodic revaluations and many documented instances of fraud (Böhm et al., 2012; Lohmann, 2010). Market proponents argue that these technical challenges can be resolved, yet even if such resolutions were possible, there remain some fundamental challenges relating to measurement assumptions, postponing the structural transition and inequality between developed countries and the Global South (Bryant et al., 2015; McAfee, 2012; Pearse & Böhm, 2014).

Possibly the most fundamental objection to MBMs is that they postpone the structural transition away from fossil fuels. Treating all emissions as equal ignores the importance of lock in and path dependence, because it does not incentivise the best technology for emissions reduction but rather the best financial practices to keep costs low. This may involve simply purchasing permits or switching to a more profitable fossil fuel technology rather than transitioning from fossil fuels (Aldred, 2012; Bryant, 2017; Lohmann, 2010). This lack of transition is a particular issue given that industrialised Global North countries are the major historical emitters. It has been argued that carbon markets, particularly the use of the CDM and Payments for Ecosystem Services (PES), serve to entrench disparities of development with regard to the Global South (McAfee, 2012; Böhm et al., 2012). Some of the seminal work on this topic has been done by Lohmann (2010: 240) who points out that cutting the emissions via “routine, cheap efficiency improvements that leave a fossil-fuelled infrastructure as it is” will be far more damaging and even expensive in the longer term than cutting the same amount by “investment in renewable technologies with a high potential for wide adoption, or through initiating approaches to food production, energy generation, or transport that are fundamentally more conducive to climatic stability”. Emissions in different locations cannot therefore be treated equally, because we must consider their role in the structural transition away from fossil fuels. In this process of deterritorialisation, MBMs further ignore the role of climate justice. Hickel (2020) considers historical emissions as “a process of atmospheric colonisation” whereby Global North countries have emitted the majority of historical emissions but Global South countries will face the majority of climate impacts and associated costs.

MBMs in the Maritime Transport Sector

Responsibility for Emissions in the Maritime Sector

In 2018, total greenhouse gas (GHG) emissions from shipping (in CO₂e) reached 1,076 m tonnes, 88% more than 1990 (562 m tonnes). The share of shipping emissions

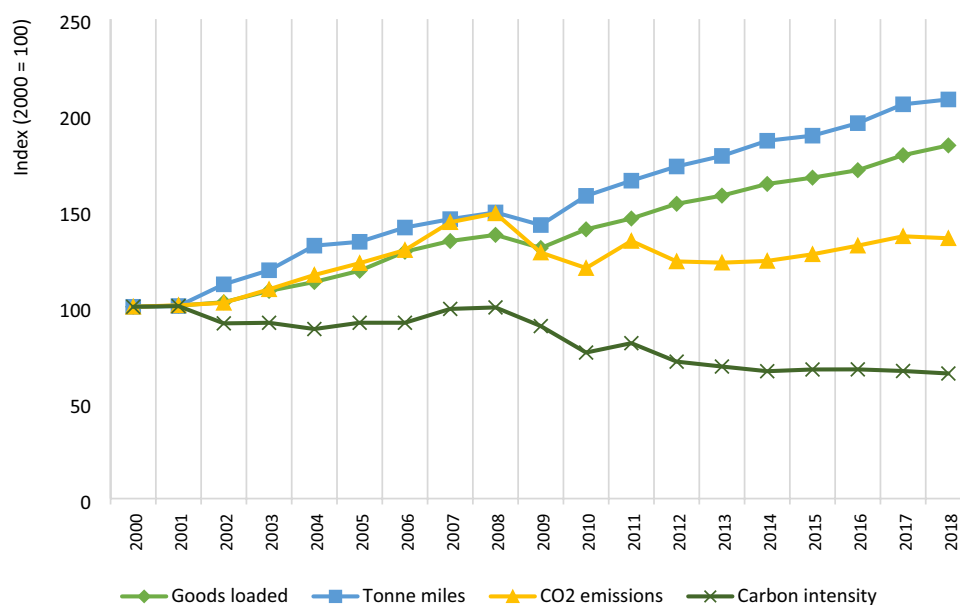
in global anthropogenic GHG emissions increased from 2.76% in 2012 to 2.89% in 2018, with all types of emissions experiencing increases (IMO, 2020). GHG emissions are projected to increase by anything up to 50% by 2050 for a range of six long-term economic and energy scenarios, with even the IMO’s best-case scenario showing no reduction in carbon emissions from 2018 to 2050 (IMO, 2020).

International maritime emissions are not included in the Kyoto or Paris nationally determined contributions (NDCs), instead devolved to the International Maritime Organisation (IMO). The relevant IMO convention regarding environmental protection is the International Convention for the Prevention of Pollution from Ships (MARPOL). The IMO has 174 member states and a convention is deemed ratified when two-thirds of members agree. The discussion and evaluation of each new environmental regulation is handled by the Marine Environment Protection Committee (MEPC), which meets every 6–9 months.

The maritime industry is comprised of a range of different actors, the most obvious being the shipping lines who carry goods on their vessels, some of which they own and others that they charter from ship owners. Other key actors are the ship registries of certain countries that act as “flags of convenience” with lower levels of regulation or taxation that attract many companies to register their ships there rather than in the country where the ship owner is itself based. Several organisations (e.g. the International Chamber of Shipping (ICS), BIMCO and the World Shipping Council) exist to lobby for industry interests in policy circles, and have successfully kept maritime emissions outside of the UNFCCC (Lister et al., 2015). According to a study by InfluenceMap (2017), the ICS regularly appears alongside the IMO at official UNFCCC events. Analysis of an MEPC meeting found that the ICS brought more delegates than 85% of states and that in total 31% of states were represented by private actors.

Individual countries also make their own maritime policies as well as enforcing the IMO regulations. It is important to recognise the different roles played by a state in maritime policy, according to the United Nations Convention on the Law of the Sea (UNCLOS). In any given situation, a state may be acting as a flag state (the country where the ship is registered), a port state (when exercising rights to inspect vessels calling at their ports) or a coastal state (when exercising jurisdiction over vessels sailing within their territorial waters). The EU is also an important actor in maritime policy, and has periodically influenced the IMO by its actions, implementing regulations on double hulls to prevent oil spills, Port State Control for ship inspection and sulphur emission regulations before the IMO. Such regulations only applied within the EU but they acted as policy feedback to increase pressure on the IMO to apply similar policies globally.

Fig. 1 The Jevons paradox in global shipping: carbon intensity vs goods loaded, tonne miles and CO₂ emissions, 2000–2018. Source: Author, based on data from UNCTAD and IMO, several years



The only current IMO policy to reduce GHG emissions is by influencing the efficiency of new vessel designs, which reduce fuel use and hence emissions of all types. A 2011 amendment to MARPOL created the Energy Efficiency Design Index (EEDI) and Ship Energy Efficiency Management Plan (SEEMP). Certain new vessels must be designed with suitable (increasing over time) increases in efficiency to meet the EEDI and all vessels must create and follow plans adhering to the SEEMP. The failure of this approach to reduce emissions suggests that the shipping industry is a case of the Jevons paradox, which states that the more efficient the use of a resource, the more is consumed in total, something first observed with the use of coal during the industrial revolution. Ships are becoming more efficient but total emissions continue to increase because we ship more goods (Fig. 1). The figure also shows that most of the efficiency gains came in the period 2008–2012, when shipping lines reduced speeds in order to burn less fuel hence lower costs during the overcapacity crisis. There is a limit to how far this technique can be utilised, hence the much lower gains since then.

Around the same time that these efficiency regulations were being considered, MBMs also began to be proposed (Miola et al., 2011). Tang and Gekara (2020) argue that shipping lines are more responsive to market incentives than regulatory pressure. The IMO MEPC 59 (July 2009) formally requested submissions from members and MEPC 60 (March 2010) appointed an expert group to evaluate the proposals and to report back to MEPC 61 (September 2010). Ten MBM proposals were made, which can be summarised into two main types: an emission trading scheme

and a bunker fuel levy or carbon tax. The MEPC analysed all proposals and concluded that, while all proposals were deemed feasible, further study was required. Successive MEPC meetings continued to evaluate the proposals, with no MBM proposal being either accepted or rejected, until the matter was officially suspended three years later at MEPC 65 in May 2013.

As a result of this inaction at the global level, the EU moved to include maritime emissions in the EU ETS from 2023. The EU scheme aims to include all CO₂ emissions from ships sailing between or berthed at EU ports, and 50% of CO₂ emissions between EU and non-EU ports. The amount of these emissions needing to be covered by ETS permits will be phased in gradually up to 100% by 2026 (Psaraftis, 2021).

Eventually, after several years of inaction, MBMs returned to the table at the IMO at the MEPC meeting 76 in June 2021. The report by Psaraftis (2021) revealed that it was agreed at this meeting to call for proposals in 2022 for evaluation in 2023, but any urgent discussion of the matter was postponed. The meeting was unexpectedly controversial, however, due to the discussion of a proposal made in December 2019 by the International Chamber of Shipping but deferred at MEPC 75. The ICS proposed a carbon levy of two USD per tonne of fuel, not necessarily as an attempt to reduce emissions directly but to create a research fund. Those against MBMs were unsurprisingly against the levy, but even those in favour of MBMs did not support the proposal, fearing that it would detract from attempts to agree a future MBM of any serious level. The discussion was postponed to the next meeting.

Analysis of the Potential Impact of an ETS or a Carbon Tax on the Shipping Sector

Lagouvardou et al. (2020) summarised the flaws in both a regional EU ETS (industry opposition, risk of distorting the market, administrative burden, carbon leakage, negative example of aviation) and a global ETS (operational and administrative complexity, likelihood of offsetting rather than reducing emissions, and the unfair market impact of transaction costs on smaller shipping lines given that the six largest control half of the market). It is significant that the EU (and likely any global) ETS does not include methane (CH₄), a GHG gas 28–34 times more potent than CO₂ over 100 years or over 85 times more powerful over 20 years (Lindstad & Riiland, 2020). This omission is important because of the increased use of liquefied natural gas (cooled methane) as a shipping fuel as well as the potentially massive increase in the use of natural gas to produce hydrogen as an alternative fuel for global shipping. Release of methane throughout this process could be a large contributor to climate change that the ETS will do nothing to prevent.

A few recent papers have modelled the impact of ETSs on shipping costs (Gu et al., 2019; Wang et al., 2015; Zhu et al., 2018), with the rather expected conclusion that results depend primarily on the bunker price as well as whether the system is open or closed, i.e. if permits can be traded outside the sector or outside the ETS. According to Psaraftis (2021), EU ETS permits purchased by the shipping sector will be fully tradeable within the scheme like other permits. Christodoulou et al. (2021) demonstrated the differential effects on various maritime trades, whereby smaller vessels such as RoRo ferries transporting trailers would be more disadvantaged than large oil tankers with higher economies of scale, potentially leading to a reverse modal shift towards road for intra-EU container and trailer traffic. Cariou et al. (2021) found that the cost increase on shipping could be enough to incentivise energy reduction measures such as wind assistance technologies.

Looking now at the carbon tax option, this choice would be less complex to administer than an ETS but there is no way of knowing in advance at what level to set the tax as it may just be absorbed and not result in any reduction of carbon. There are also objections to bodies such as the IMO exerting tax-raising powers, hence the preference to use terminology such as “contribution” rather than tax (Kosmas & Acciaro, 2017; Psaraftis, 2012). It is also politically difficult to set a suitably high price, which is why political bodies (e.g. the EU) tend to prefer an ETS. Lee et al., (2013: 87) analysed the impact of a carbon tax on the economy, concluding that “imposing a maritime carbon tax on international container shipping will not lead to a significant economic impact unless the tax level is high”. A 2018 industry survey found that 75% of industry agreed that a carbon price

was needed but that they would only be willing to pay a maximum of 50 USD per tonne of CO₂ (Lloyd’s Register and University Maritime Advisory Services, 2018). According to the World Bank, a carbon tax of 10–50 USD per tonne of CO₂ would potentially increase shipping costs by between 0.4–16 per cent, but only increasing the final goods price by less than 1 per cent (Halim et al., 2019). Therefore, industry actors support a price but only one that would produce less than 1% change in the overall price of the goods thus not high enough to cause any change in behaviour, surely a logical contradiction in a supposedly Pigouvian tax. The 2021 capacity crisis in shipping as a result of COVID-19 saw maritime freight rates jump by an average of around 600%, from around 1,000–3,000 USD per container to 7,000–10,000 USD (depending on the route) and there is little evidence so far of trade declining, which suggests that demand for maritime transport (at least, container transport) is relatively inelastic. Thus shipping lines would have little trouble passing a tax on to their customers, or they could choose to accept a small reduction in the record profits they are currently earning through these price rises. In order either for the shipping lines not to pass the tax on, or for it to influence customer demand if they did, a carbon tax would therefore need to be of at least a similar level of magnitude, which is far above any existing proposals.

The Current State of Impasse

Most scholars agree that a global maritime ETS is unworkable, therefore lean towards the carbon levy as the better option, even though it has its own challenges in both implementation and likely outcome on emissions, particularly the unlikelihood of setting a suitably high price (Lagouvardou et al., 2020; Psaraftis, 2012, 2019). A recent historical review of the process by Lagouvardou et al. (2020) reached an ultimately pessimistic conclusion that the rock bottom fuel price as a result of COVID-19 and the current market and policy turmoil will make it even more unlikely that any serious MBM will be implemented.

Monios and Ng (2021) identified the impasse at the IMO regarding MBM discussions and the erosion of the institutional ability to find a solution. This is reflected in the fact that the IMO has not yet even been able to adopt the IPCC target of full decarbonisation by 2050, currently aiming for a minimum of 50% reduction by that date. The issue of climate justice with regard to the MBM discussion at the international level appears because some developing countries, particularly large nations China, Brazil and India, lobbied against many of these initiatives on the basis of the UNFCCC principle of “Common But Differentiated Responsibilities (CBDR)”. According to this principle, the costs of decarbonising should apply first to the Annex 1 countries, which are industrialised countries and “countries in

transition". This principle conflicts with the IMO policy of "no more favourable treatment" (NMFT), a regulation that was introduced so that ships flying the flag of a country that had not ratified a convention do not benefit from evading such responsibilities. There exists no proposal or mechanism at the IMO to attempt to account for historical emissions in designing a framework for apportioning responsibility for decarbonising according to a timeline that takes into account the degree to which the Global North has disproportionately benefited from cheap transport of resources from the Global South (see, e.g. Givens et al., 2019 on "ecologically unequal exchange" and Hickel, 2020 on the concept of an atmospheric commons).

In September 2021, over 150 maritime organisations, including some major ports (e.g. Rotterdam, Hamburg) and carriers (e.g. Maersk, MSC) called on the IMO to adopt a target of full decarbonisation by 2050 (Global Maritime Forum, 2021). While such an announcement seems to contradict the previous history of obstruction of climate policy by the sector, it suggests that some level of willingness may exist for transitioning as long as the policy is clear, creates a level playing field for all industry actors and comes with a suitably long phase-in period.

If this target is adopted, then the logical implication is that fossil-fuelled vessels should not be used after 2050, and a policy approach will be needed to achieve this goal. An alternative to the current focus on MBMs would be direct regulation of carbon emissions at source by banning the use of fossil fuels by 2050 and gradually phasing out fossil-fuelled activities up to that date. In order to phase them out by 2050, the sale of new fossil-fuelled vessels would need to be banned by an earlier date. Setting this date is difficult, given that the commercial life of many ships is well over 20 years. Vessels can in fact be retrofitted with different engines or fuel systems but this is costly, time-consuming and causes its own problem of environmental waste. Setting a date of 2035–40 would send a signal to ship owners that they are only going to obtain 10–15 years value of their investment, unless they retrofit it for renewables at a later date. Some countries (e.g. France and the UK) are already banning the sale of new fossil-fuelled cars and trucks by 2040. Such policies are easier to enact when these emissions are included in national emission accounts, whereas international shipping is not, although this arrangement may itself change if the IMO impasse continues long enough (discussed in the next section). Such clear timescales would give certainty to the market, provide a level playing field, leave the choice of technology paths to industry and not require all the complicated regulation and administration of market-based mechanisms. The technology for zero-carbon shipping fuels such as green hydrogen already exists but needs to be scaled up. Carbon levies can be used to raise funds to support research and development, but will not on their

own bring about an industry-wide fuel transition as long as fossil fuels are abundantly available. The details of alternative fuels can be left to industry actors but the role of policy makers is to provide the right conditions to transition away from the current system.

Case Analysis

Table 1 lists the fairness and corruption objections to MBMs if they were introduced to maritime transport. The fairness objections show how MBMs would not lead to fair outcomes due to problems built into the system design, which, despite continued claims that they can be fixed, never are. MBMs are not even being discussed at any serious level of impact. The only MBMs being considered (regional ETS, very low carbon tax of 2 USD) are too weak to have any significant effect. The major negative outcome is that these arguments serve to disincentivise the necessary structural transition away from fossil fuels. Moreover, they serve as a placeholder that avoids national responsibility because keeping maritime emissions in the international sphere makes it very difficult to reach agreement. The case showed how lobby groups prevent maritime emissions going back to the UNFCCC, knowing that in the IMO they can continue to delay, thus evading action.

Sandel's corruption objections can be identified in the maritime case in the lack of urgency, which could be argued to be evidence of the removal of the stigma that pollution is wrong. First, it affects the kind of solutions proposed because they are intended foremost as commercial activities rather than solving the problem (thus overlapping with one of the fairness objections about achieving inferior outcomes discussed above). The proposed solutions (MBMs and efficiency approaches rather than regulations or bans) make little difference to emissions and continue a business-as-usual approach. Second, removing the urgency allows actors at the IMO to delay and postpone, which would be more difficult to justify if the stigma were greater. Once again, it acts as a placeholder, allowing actors to say they are in favour of action but then argue over the form and the price rather than take any action. "Discourses of climate delay" (Lamb et al., 2020) are becoming increasingly prominent, as climate denial has been replaced by delay, a key area being this kind of extended debate over technological and market solutions. Climate scientist Alex Steffen (2017: unpaginated) goes further, defining "predatory delay" as "the blocking or slowing of needed change, in order to make money off unsustainable, unjust systems in the meantime".

One objection that draws on both fairness and corruption is the issue of climate justice which is rarely considered in maritime transport policy. The IMO insists on NMFT rather than CBDR which comes from the UNFCCC, thus this fundamental barrier to a fair transition is built into the

Table 1 List of fairness and corruption objections to MBMs in maritime transport

Problem	Description	Objec- tion	How it is relevant to maritime transport	
			F	C
Bad system design	Problems include too many free permits, not enough auctioning, financialisation of the instruments, difficulty in setting price, allowing offsets, administrative complexity. Defenders argue that these can be fixed, even though there is no evidence that they can or will be	X	Cannot agree on a global policy. Only options considered are a very low carbon price of 2 USD or bringing maritime emissions into EU ETS, both unlikely to make significant difference	
Disincentivises the structural transition	Thereby locking in the future emissions and worse outcomes. It does depend where and how the cuts are made but the current market ignores that	X	As long as fossil fuels remain abundant and cheap, MBMs will not incentivise transition away. Strong evidence that the price would just be absorbed	
Avoids national responsibility	The national level is the best level to take action yet leaving shipping emissions to the international market and using MBMs to get consumers to pay lets countries off the hook to take responsibility themselves	X	Shipping lobby groups prevent maritime emissions going back to UNFCCC because in the IMO they can continue to delay, thus evading national scrutiny	
Climate justice	Ignoring historical emissions leads to unfair outcomes, expecting developing countries to pay the same, even though most of them a) did not emit and b) will face the worst outcomes	X	IMO wants NMFT rather than CBDR, conflicts with UNFCCC and climate justice	
Commodifies nature	MBMs attempt to remove the moral element of polluting and in particular the role of historic pollution and industrial development and state that there is nothing morally wrong with emissions or who emitted them—it's just a market issue to resolve	X		
Crowds out non-market norm that pollution is not acceptable	Proposed solutions do not aim to solve the problem but to create opportunities for companies to make money, which influences the kinds of solutions adopted	X	MBMs & efficiency approaches rather than regulations or bans	
	Combating pollution with a fee makes pollution acceptable. No discussion of how it is wrong—just endless technical debate about finding the best technique. The urgency is lost and action is disincentivised by allowing pollution to be acceptable rather than something that companies want to get away from	X	Only argue about the price but no urgency to transition	

IMO (Monios & Ng, 2021). Selin et al. (2021) propose to return maritime carbon reduction responsibility from the IMO to the UNFCCC and thus put maritime emissions back into national accounts, on the rationale that the UNFCCC has more signatories than the IMO and allows for differential treatment between countries. This change could also make it easier to target the shipowners, because each country could then apply regulations to the shipowner according to the country in which the company is located rather than the current IMO approach that targets the users. It has been argued that shipowners could be a better actor to target since they order the vessels and choose the parameters whereas increased fuel prices target the users of existing ships (Poulsen et al., 2021). It is essential that any chosen policy aims to stop building new fossil-fuelled vessels in the near future given that they last more than 20 years. MBMs will not incentivise a move away from fossil fuels while oil and gas are abundant and cheap and fossil-fuelled vessels can still be built, purchased and operated. If the IMO will not ban fossil-fuelled ships, maritime emissions might be better placed in country accounts, which again links both fairness and corruption objections in terms of concrete goals and outcomes and a link between citizens, businesses and national responsibility for emissions.

Some studies have calculated the relative shares of the increased costs (either from a carbon tax or ETS permit costs) that might be passed onto the consumer or incentivise emissions reduction by shipping lines through efficiency improvements, but this approach produces a false dichotomy between transport providers and consumers. The likelihood is that the increase is absorbed regardless, either by the provider (by decreasing their profit or avoiding the cost by improving their efficiency) or by the consumer (by simply accepting to pay more for transport). Recent skyrocketing freight rates suggest that the cost will be absorbed and not significantly change behaviour by either actor. Sandel's argument shows how treating environmental protection as a market relationship whereby the polluter pays has crowded out non-market norms that it is not acceptable to pollute. The last decade has furnished endless technical discussions about where to set the price rather than building consensus that polluting activities are unacceptable and should be phased out.

Allied to this problem is the unwillingness to identify the collective action problem and the institutional impasse (Monios & Ng, 2021). We are expecting business to find solutions when it is clear that the current system incentivises the opposite. The impasse cannot be broken by redesigning the institutional relationships between different public and private organisations or identifying if this or that country or shipping line is obstructing MBM agreement at the IMO MEPC. The collective action problem cannot be solved with market logic or financial incentives. Moreover, the problem

is not only the weakness of the proposed MBMs, but the fact that no MBM has yet been agreed at all at the global level. The IMO member countries, frequently represented at meetings by industry actors, continue to delay and postpone. Market-based environmental governance has created a situation where only weak solutions are proposed, which are then endlessly discussed, faults identified, and then postponed for further discussion, making it impossible for any transformative policy to break through.

The work of Sandel and others on market ethics relates to the negative outcomes of MBMs when in use, but previous authors have not considered how existing MBMs or even previous proposals for MBMs can influence succeeding policy discussions and render alternatives invisible. The maritime case demonstrates that the fairness and corruption objections were identified not only in the way that MBMs would work if they were applied, but also in the ongoing policy process. If they were applied they would have weak outcomes, thus evidencing the fairness objection, and crowd out non-market norms by focusing on efficiency and reducing urgency, thus reflecting the corruption objection. In the policy process, the fairness objection is seen in how policy is still based on efficiency rather than transitioning away from fossil fuels, and the corruption objection can be observed in the crowding out of alternatives for discussion.

The case showed how MBMs were discussed and then abandoned a decade ago without a decision being made; then in 2021, the same process started again with a fresh call from the IMO for MBM proposals. This lack of progress shows the impact of non-decision and delay and the invisibility of alternatives. The case thus reveals how MBMs can be used as a delaying tactic, knowing that the discussion will continue through several rounds of debate and technical argument about the form of the mechanisms. It could even be argued that the proposed 2 USD levy has created further delay, becoming a diversionary focus of discussion and even leading to a split among MBM proponents who fear that its adoption could replace the possibility of a tax at any significant level.

Discussion

The business ethics literature shows how regulation of the environmental impacts of business has moved from command-and-control to voluntary approaches to MBMs. MBMs not only have their own technical and fundamental flaws, but they are used to silence and depoliticise alternatives. The maritime case showed how MBMs were neither accepted nor rejected a decade ago, and have now returned to the table because alternatives are invisible. This finding supports the work of Felli (2015) on the power of non-decision. The attempt to depoliticise maritime emissions by

assigning them to the IMO rather than individual countries has weakened direct links to responsibility and allowed ongoing discussion by private actors behind closed doors. Yet the case also identified an interesting tension between the short-term perspective of private actors blocking regulation and a potential medium-term acceptance of a changing policy landscape as some shipping lines have called for decarbonisation by 2050. This tension reflects the findings of Mullin (2002) and Burrell (2005) regarding the potential for sectoral change according to the perspective of key actors on the likely policy direction.

The gap in the business ethics literature identified by Felli (2015) regarding the invisibility of alternative approaches was filled by turning to the market ethics literature, which says that markets are not neutral, and may lead to unfair outcomes as well as corrupting social and political norms and avoiding difficult political decisions. These issues were defined by Sandel as the “fairness” and corruption” objections. Market norms suggest that we should just pay more for a negative activity rather than banning it. This approach not only does not work due to poor design that is fundamental to the system, but it crowds out non-market norms whereby it is not acceptable to pollute. This literature shows how MBMs in practice lead to unfair outcomes and the crowding out of non-market norms, and the analysis of the maritime case confirmed that this would also occur if MBMs were implemented. The novelty of the analysis was that it also provided evidence of both objections in the decade-long dominance of MBMs in the policy landscape. The fairness objection is seen in how policy is still based on efficiency rather than transitioning away from fossil fuels, and the corruption objection was evidenced by how MBMs have crowded out non-market policies, regardless of whether MBMs are even applied.

These findings from the ethics discussion can shed light on the research question regarding the dominance of MBMs in shipping climate policy. The business ethics literature has charted an evolution of the role of business in setting regulation, from rule takers to rule makers, a move away from “state-centric” approaches (Andrade et al., 2014). In the governance of international shipping, the private sector is heavily involved at the IMO level, exerting a negative influence by obstructing climate policy. While various voluntary schemes are developing in the sector, they only target incremental gains that are easily overtaken by traffic growth. The key outcome from these schemes is in fact the way such voluntary governance is used to divert authority on environmental matters from regulatory organisations. The call for more environmental regulation from market leader Maersk has even been characterised as a way to strengthen existing market dominance because the hundreds of very small operators cannot do likewise, thus “further concentrating governance power within a few transnational corporations

[and] potentially taking more ambitious regulation off the agenda” (Alger et al., 2021: 144). This outcome again ties the maritime case into Felli’s argument about the entrenchment of existing economic relations that avoid any radical system change. This entrenchment is further driven by the tension between nation states and the IMO, where some large nations refuse to consent to any international shipping regulation that may threaten their economic model. Analysing climate policy through the lens of ethics thus reveals an impasse at the heart of climate policy: climate change mitigation is a political problem requiring active intervention that cannot be achieved by leaving it to the market, but political actors do not want to change the market logic dominating their policies, which are underpinned by assumptions of growth and business-as-usual.

Analysing MBMs from the perspective of both business and market ethics has revealed how the dominance of MBMs reflects the existing policy environment biased by market thinking. Felli (2015: 655–656) argues that MBMs are used to avoid discussions of “alternative socio-ecological relations based on a democratic decision-making process related to the production of use values”. MBMs serve to render invisible alternative socioeconomic approaches such as degrowth (Hickel, 2020), which would require democratic decisions of how to organise resources in alternative ways, at least partly outside the market system or providing strong direction to markets. This again links Felli’s work with Sandel, as one of Sandel’s key arguments is that MBMs are used to avoid democratic and societal discussion and decisions on how to deal with problematic or scarce but socially important goods and services. Using MBMs is attractive to policymakers because it allows them to avoid difficult decisions, but it leads instead to corruption and unfairness and ultimately these depoliticised and dysfunctional negotiations act as a discourse of climate delay.

Applying the lens of ethics to climate policy may be able to point the way towards a disruption that can help policymakers pivot towards alternatives. First, we must accept that climate change mitigation is a political problem requiring political decisions. Second, these political decisions must encompass both traditional spheres of operational regulation (from safety to market power to environmental limits) as well as new approaches to the economy such as reducing the total amount of goods transported. This approach does not exclude market actors; the advantages of a supply-side approach and a ban on fossil fuels are that technical responses (hydrogen, ammonia, electricity, wind, etc.) are left to the market.

Three potential solutions can be identified; first, a return to direct regulation by instituting a ban on fossil fuels. This has the advantage of providing certainty to the market and incentives to developers of alternatives and for shipping lines to become the first movers. Nevertheless, the political

challenges of such a regulation may be insurmountable, at least at the international level. Therefore, the second aspect is a governance change to move responsibility for maritime emissions back to the national level where at least some countries may then apply such direct regulation. Yet many countries, even so-called environmental leaders, only envisage a transition to alternative fuels and to continue and even grow current levels of shipping. The likelihood of being able to produce sufficient green fuels is in fact highly improbable. Producing sufficient green electricity to cover existing domestic power needs, in addition to electric cars and other future uses, is already a historic challenge (ETC, 2020). Producing additional green electricity in order to produce the green hydrogen and ammonia needed to fuel the shipping sector may not be possible in any realistic timescale. Even if this were possible, it does not begin to address related issues such as resource depletion and water pollution. Thus, the third solution is to evaluate the potential of alternative economic approaches such as degrowth (Monios & Wilmsmeier, 2022). The work of both Felli and Sandel aids us in understanding why such alternatives are rendered invisible by the dominance of market-based thinking.

Conclusion

“Leave the market economists to fight among themselves over the right price of carbon—let them relive their groundhog day if they wish. The world is moving on and we need to have the audacity to think differently and conceive of alternative futures”. Anderson and Bows (2012)

The aim of this paper was to understand why MBMs remain the dominant policy proposal for climate change mitigation in the maritime sector, despite their lack of success and even acceptance. Exploring both the fairness and corruption objections raised by Sandel via the maritime case has revealed that one of the core issues with MBMs that has been under-addressed in the ethics literature is the role they play as a diversionary tactic. Proponents claim that market approaches are better because of the neoclassical assumptions whereby the polluter can pay the external costs. However, this approach overlooks the likelihood of this price simply being absorbed. Is the goal simply that the polluter pays for their pollution and continues polluting or is the aim to change behaviour and dissuade the purchase of polluting transport services (cf. Bigger, 2016)? The latter aim implies that the price should be high and disruptive, yet shipping lines which had rejected anything more than a 16% increase later raised their prices by 600% and earned record profits as demand remained unchanged.

Both governments and industry appear to accept the need to transition away from fossil fuels, yet rather than propose legislation to phase them out, both policy makers and analysts continue to legitimise MBMs. They engage in technical discussions about the administrative procedure and economic arguments about setting the price, focusing on increasing efficiency rather than any change in fuel source or targets for total emissions reduction. The question is not just why agreement cannot be reached on these mechanisms, but why they are the only mechanisms discussed, given their well-known shortcomings. The underlying issue is political, concerning the invisibility of alternative approaches which leads us to choose solutions that at best will make only a partial contribution. This mode of governance carries an implication of (particularly neoliberal) economics as a natural rather than social science, with predictive and explanatory models, but natural scientists are mocking this continued obsession with failed market-based mechanisms, as the quotation above from climate scientists Anderson and Bows (2012) makes clear. An essential part of escaping the current impasse is recognising the ethical dimension as proposed by Felli and Sandel. If we continue to view atmospheric pollution leading to climate change as only an economic issue and a matter of designing the right incentive, we will fail.

An avenue for future research could be to explore how to utilise the techniques of policy feedback (cf. Green, 2018; Jordan & Matt, 2014) to build a consensus for more stringent policy. It was shown that certain maritime policies applied by the EU acted as policy feedback to pressure the IMO into adopting similar policies at the global level. The finding above regarding the tension between blocking and accepting regulation is key here, because, above all, private actors want certainty over future regulations and, if possible, a future competitive advantage by being the first to bring new technology to the market. It is possible that shipping lines and shipowners could switch their perspective towards decarbonisation if policy makers have the courage to provide a clear phasing in of future regulations on the supply of fossil fuels and fossil-fuelled ships. MBMs prevent such a transition by embedding business-as-usual but direct regulation by banning fossil-fuelled ships by a certain date could act as policy feedback to build this new industry norm. This does not rule out applying a tax in conjunction with a ban, but the tax on its own will not work.

This paper aimed to make several contributions to the business ethics literature. First, it speaks to the key topic of business regulation, considering direct regulatory approaches such as strict supply regulations or bans compared to the current dominance of market approaches, raising issues of depoliticisation and non-decision. This contribution is a response to earlier calls (Pearse & Böhm, 2014) for experts and policy makers, and indeed academics, to raise the profile of such alternatives. Second, it aims to

fill the gap in the business ethics literature on how direct regulation is rendered invisible as identified by Felli (2015), by turning to the literature on market ethics in which the normalisation of market thinking is the driver of this invisibility. The work of Sandel and others reveals not just the weaknesses of MBMs in practice due to issues of fairness and corruption, but highlights how the continued proposals of MBMs reflects the invisibility of alternatives and can also be used as a “discourse of climate delay” (Lamb et al., 2020) to avoid direct regulation, even when the MBMs are not even enacted. The work of both Felli and Sandel also reveals that this process of depoliticisation entrenches existing economic relations dominated by private actors, rendering any climate action that may threaten this economic model even more difficult.

Third, while Sandel’s work is well known, it has seen limited empirical application, thus this paper explored how his ideas work in practice in a sustained application to the maritime transport sector. Fourth, while this sector underpins global business and carries approximately 90% of all goods, it has only rarely been discussed in the business ethics literature, thus the case functions not only as an illustration of business and market ethics, but sheds light on the key actors and processes in the sector from the local to the global level. Viewing the sector through the lens of business and market ethics highlights that climate change mitigation is a political problem requiring active intervention that cannot be achieved by leaving it to the market.

Acknowledgements This research has been partly supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) project (N^o 895-2017-1003) on “Green Shipping: Governance and Innovation for a Sustainable Maritime Supply Chain”.

Declarations

Conflict of interest The author declares that he has no conflict of interest.

Research Involving Human and Animals Rights Not applicable for this paper as it is based on the analysis of secondary data.

Informed Consent Not applicable for this paper as it is based on the analysis of secondary data.

References

- Aldred, J. (2012). The ethics of emissions trading. *New Political Economy*, 17(3), 339–360.
- Alger, J., Lister, J., & Dauvergne, P. (2021). Corporate governance and the environmental politics of shipping. *Global Governance*, 27, 144–166.
- Anderson, E. (1993). *Value in ethics and economics*. Cambridge UP.
- Anderson, K., & Bows, A. (2012). A new paradigm for climate change. *Nature Climate Change*, 2(9), 639.
- Andrade, J. C. S., & Puppim de Oliveira, J. A. (2014). The role of the private sector in global climate and energy Governance. *Journal of Business Ethics*, 130(2), 375–387.
- Bayer, P., & Acklin, M. (2020). The European union emissions trading system reduced CO₂ emissions despite low prices. *PNAS*, 117(16), 8804–8812.
- Besley, T. (2013). What’s the good of the market? An essay on Michael Sandel’s ‘what money can’t buy.’ *Journal of Economic Literature*, 51(2), 478–495.
- Bigger, P. (2016). Regulating fairness in the design of California’s cap-and-trade market. In S. Paladino & S. J. Fiske (Eds.), *The carbon fix; forest carbon, social justice, and environmental Governance* (pp. 119–134). Routledge.
- Bigger, P. (2017). Hybridity, possibility: Degrees of marketization in tradeable permit systems. *Environment and Planning A*, 50(3), 512–530.
- Böhm, S., & Dhahi, S. (2011). Commentary: Fault lines in climate policy: What role for carbon markets? *Climate Policy*, 11(6), 1389–1392.
- Böhm, S., Misoczky, M. C., & Moog, S. (2012). Greening capitalism? A marxist critique of carbon markets. *Organization Studies*, 33(11), 1617–1638.
- Bowen, F. (2019). Marking their own homework: The Pragmatic and moral legitimacy of industry self-regulation. *Journal of Business Ethics*, 156, 257–272.
- Breeze, N. (2019). “It’s nonlinearity – stupid!” *The Ecologist*. 3rd January 2019. Retrieved, from <https://theecologist.org/2019/jan/03/its-nonlinearity-stupid>. Accessed 20 Sept 2022.
- Bruni, L., & Sugden, R. (2013). Reclaiming virtue ethics for economics. *Journal of Economic Perspectives*, 27(4), 141–164.
- Bryant, G. (2016). The politics of carbon market design: rethinking the techno-politics and post-politics of climate change. *Antipode*, 48(4), 877–898.
- Bryant, G. (2017). Nature as accumulation strategy? finance, nature, and value in carbon markets. *Annals of the American Association of Geographers*, 108(3), 605–619.
- Bryant, G., Dabhi, S., & Böhm, S. (2015). “Fixing” the climate crisis: Capital, states, and carbon offsetting in India. *Environment and Planning A*, 47(10), 2047–2063.
- Burress, D. (2005). What global emission regulations should corporations support? *Journal of Business Ethics*, 60(4), 317–339.
- Caney, S. (2010). Markets, morality and climate change: What, if anything, is wrong with emissions trading? *New Political Economy*, 15(2), 197–224.
- Cariou, P., Lindstad, E., & Jia, H. (2021). The impact of an EU maritime emissions trading system on oil trades. *Transportation Research Part D*, 99, 102992.
- Choat, S. (2018). Everything for Sale? Neoliberalism and the limits of Michael Sandel’s philosophical critique of markets. *New Political Science*, 40(1), 1–14.
- Christodoulou, A., Dalaklis, D., Ölçer, A. I., & Masodzadeh, P. G. (2021). Inclusion of shipping in the EU-ETS: Assessing the direct costs for the maritime sector using the MRV data. *Energies*, 14, 3915.
- Cooper, M. H. (2015). Measure for measure? Commensuration, commodification, and metrology in emissions markets and beyond. *Environment and Planning A*, 47(9), 1787–1804.
- Corporate Europe Observatory (2014). *Life beyond emissions trading*. Retrieved, from <https://corporateeurope.org/en/climate-and-energy/2014/01/life-beyond-emissions-trading>. Accessed 20 Sept 2022.
- Dirix, J., Peeters, W., & Sterckx, S. (2016). Emissions trading ethics. *Ethics, Policy and Environment*, 19(1), 60–75.

- Dobson, A. (2003). *Citizenship and the environment*. Oxford University Press.
- ETC. (2020). *Making mission possible; delivering a net-zero economy*. ETC.
- Felli, R. (2015). Environment, not planning: The neoliberal depoliticisation of environmental policy by means of emissions trading. *Environmental Politics*, 24(5), 641–660.
- Frey, B. S. (2000). *Inspiring economic: human motivation in political economy*. Edward Elgar.
- Givens, J. E., Huang, X., & Jorgenson, A. K. (2019). Ecologically unequal exchange: A theory of global environmental justice. *Sociology Compass*. <https://doi.org/10.1111/soc4.12693>
- Global Maritime Forum. (2021). Call to Action for Shipping Decarbonization. Retrieved, from <https://www.globalmaritimeforum.org/content/2021/09/Call-to-Action-for-Shipping-Decarbonization.pdf>. Accessed 20 Sept 2022.
- Goodin, R. (1994). Selling environmental indulgences. *Kyklos*, 47(4), 573–596.
- Green, F. (2018). The logic of fossil fuel bans. *Nature Climate Change*, 8, 449–551.
- Green, F., & Denniss, R. (2018). Cutting with both arms of the scissors: The economic and political case for restrictive supply-side climate policies. *Climatic Change*, 150(1–2), 73–87.
- Gu, Y., Wallace, S. W., & Wang, X. (2019). Can an emission trading scheme really reduce CO₂ emissions in the short term? Evidence from a maritime fleet composition and deployment model. *Transportation Research Part D*, 74, 318–338.
- Halim, R. A., Smith, T., Englert, D. (2019). *Understanding the Economic Impacts of GHG Mitigation on Shipping. What Is the State of the Art of Current Modeling Approaches?* Policy Research Working Paper 8695. The World Bank. Retrieved, from <http://documents.worldbank.org/curated/en/215561546957017567/pdf/WPS8695.pdf>. Accessed 20 Sept 2022.
- Herzog, L. (2015). No company is an Island. Sector-related responsibilities as elements of corporate social responsibility. *Journal of Business Ethics*, 146(1), 135–148.
- Hickel, J. (2020). *Less is more; how degrowth will save the World*. William Heinemann.
- IMO. (2020). *Fourth IMO GHG Study 2020*. IMO.
- InfluenceMap. (2017). Corporate capture of the International Maritime Organization How the shipping sector lobbies to stay out of the Paris Agreement. Retrieved, from <https://influencemap.org/report/Corporate-capture-of-the-IMO-902bf81c05a0591c551f965020623fda>. Accessed 20 Sept 2022.
- Jordan, A., & Matt, E. (2014). Designing policies that intentionally stick: Policy feedback in a changing climate. *Policy Sciences*, 47(3), 227–247.
- Kanbur, R. (2001). *Obnoxious Markets*. Working Papers 127655, Cornell University, Department of Applied Economics and Management.
- Kosmas, V., & Acciaro, M. (2017). Bunker levy schemes for greenhouse gas (GHG) emission reduction in international shipping. *Transportation Research Part D*, 57, 195–206.
- Krugman, P. (2018). “The depravity of climate-change denial; Risking civilization for profit, ideology and ego”. *The New York Times*. Retrieved November 26, 2018, from <https://www.nytimes.com/2018/11/26/opinion/climate-change-denial-republican.html?fbclid=IwAR2WUqnyktb-tgxx2-NYt4KNy4NSnHjFuJG-CzsJKIMLEbFLuVkkxGq2HbI>
- Lagouvardou, S., Psaraftis, H. N., & Zis, T. (2020). A literature survey on market-based measures for the decarbonization of shipping. *Sustainability*, 12, 3953.
- Lamb, W. F., Mattioli, G., Levi, S., Roberts, J. T., Capstick, S., Creutzig, F., Minx, J. C., Müller-Hansen, F., Culhane, T., & Steinberger, J. K. (2020). Discourses of climate delay. *Global Sustainability*, 3, e17.
- Le Billon, P., & Kristoffersen, B. (2020). Just cuts for fossil fuels? Supply-side carbon constraints and energy transition. *Environment and Planning A*, 52(6), 1072–1092.
- Lee, T., Chang, Y., & Lee, P. (2013). Economy-wide impact analysis of a carbon tax on international container shipping. *Transportation Research Part A*, 58, 87–102.
- Lindstad, E., & Riialand, A. (2020). LNG and cruise ships, an easy way to fulfil regulations—versus the need for reducing GHG emissions. *Sustainability*, 12(5), 2080.
- Lister, J., TaudalPoulsen, R., & Ponte, S. (2015). Orchestrating transnational environmental governance in maritime shipping. *Global Environmental Change*, 34, 185–195.
- Lloyd’s Register and University Maritime Advisory Services (2018). *Zero-emission vessels 2030. How do we get there?* Retrieved, from www.lr.org/en/insights/articles/zev-report-article. Accessed 20 Sept 2022.
- Lohmann, L. (2010). Uncertainty Markets and Carbon Markets: Variations on Polanyian Themes. *New Political Economy*, 15(2), 225–254.
- MacIntyre, A. (1984). *After Virtue: A study in moral theory* (2nd ed.). University of Notre Dame Press.
- McAfee, K. (2012). The contradictory logic of global ecosystem services markets. *Development and Change*, 43(1), 105–131.
- Miola, A., Marra, M., & Ciuffo, B. (2011). Designing a climate change policy for the international maritime transport sector: Market-based measures and technological options for global and regional policy actions. *Energy Policy*, 39, 5490–5498.
- Monios, J., & Ng, A. K. Y. (2021). Competing institutional logics and institutional erosion in environmental governance of maritime transport. *Journal of Transport Geography*, 94, 103114.
- Monios, J., & Wilmsmeier, G. (2022). Maritime governance after COVID-19: How responses to market developments and environmental challenges lead towards degrowth. *Maritime Economics & Logistics*. <https://doi.org/10.1057/s41278-022-00226-w>
- Moore, B., & Jordan, A. (2020). Disaggregating the dependent variable in policy feedback research: An analysis of the EU emissions trading system. *Policy Sciences*, 53, 291–307.
- Mullin, R. P. (2002). What can be learned from DuPont and the Freon Ban: A case study. *Journal of Business Ethics*, 40(3), 207–218.
- Narassimhan, E., Gallagher, K. S., Koester, S., & Alejo, J. R. (2018). Carbon pricing in practice: A review of existing emissions trading systems. *Climate Policy*, 18(8), 967–991.
- Néron, P. Y. (2010). Business and the polis: What does it mean to see corporations as political actors? *Journal of Business Ethics*, 94(3), 333–352.
- O’Neill, J. (2007). *Markets, deliberation and environment*. Routledge.
- Page, E. (2011). Cosmopolitanism, climate change, and greenhouse emissions trading. *International Theory*, 3, 37–69.
- PBL Netherlands Environmental Assessment Agency. (2020). *Trends in Global CO₂ and Total Greenhouse Gas Emissions*.
- Pearse, R., & Böhm, S. (2014). Ten reasons why carbon markets will not bring about radical emissions reduction. *Carbon Management*, 5(4), 325–337.
- Poulsen, R. T., Ponte, S., van Leeuwen, J., & Rehmatulla, N. (2021). The potential and limits of environmental disclosure regulation: A global value chain perspective applied to tanker shipping. *Global Environmental Politics*, 21(2), 99–120.
- Psaraftis, H. N. (2012). Market based measures for greenhouse gas emissions from ships: A review. *WMU Journal of Maritime Affairs*, 11, 211–232.
- Psaraftis, H. N. (2019). Decarbonization of maritime transport: To be or not to be? *Maritime Economics & Logistics*, 21(3), 353–371.
- Psaraftis, H. N. (2021). Shipping decarbonization in the aftermath of MEPC 76. *Cleaner Logistics and Supply Chain*, 1, 100008.

- Qizilbash, M. (2019). The market, utilitarianism and the corruption argument. *International Review of Economics*, 66, 37–55.
- Radin, M. (1996). *Contested commodities; The trouble with trade in sex, children, body parts and other things*. Harvard University Press.
- Randalls, S. (2010). Broadening debates on climate change ethics: Beyond carbon calculation. *The Geographical Journal*, 177(2), 127–137.
- Roth, A. E. (2007). Repugnance as a constraint on markets. *Journal of Economic Perspectives*, 21(3), 37–58.
- Roth, S., Valentinov, V., Heidingsfelder, M., & Pérez-Valls, M. (2020). CSR Beyond economy and society: A post-capitalist approach. *Journal of Business Ethics*, 165, 411–423.
- Sandel, M. (2005). *Public philosophy: Essays on morality in politics*. Harvard University Press.
- Sandel, M. (2010). *Justice: What's the right thing to do?* Farrar, Straus and Giroux.
- Sandel, M. (2012a). *What Money Can't Buy; The moral limits of markets*. Allen Lane.
- Sandel, M. (1997, December 15). It's immoral to buy the right to pollute. *New York Times*. Retrieved, from <https://www.nytimes.com/1997/12/15/opinion/it-s-immoral-to-buy-the-right-to-pollute.html>. Accessed 20 Sept 2022.
- Sandel, M. J. (2012b) "Michael J. Sandel Responds." *The Hedgehog Review*. Fall 2012b. Retrieved, from <https://hedgehogreview.com/issues/work-and-dignity/articles/response>. Accessed 20 Sept 2022.
- Sandel, M. J. (2012c). "Response: Keeping Markets in Their Place." *Boston Review*. May/June 2012c. Retrieved, from https://bostonreview.net/forum_response/keeping-markets-their-place/. Accessed 20 Sept 2022.
- Satz, D. (2010). *Why some things should not be for sale: The moral limits of markets*. Oxford University Press.
- Schwanen, T., Banister, D., & Anable, J. (2011). Scientific research about climate change mitigation in transport: A critical review. *Transportation Research Part A*, 45, 993–1006.
- Selin, H., Zhang, Y., Dunn, R., Selin, N. E., & Lau, A. K. (2021). Mitigation of CO₂ emissions from international shipping through national allocation. *Environmental Research Letters*, 16(4), 045009.
- Sinn, H. W. (2012). *The green paradox: A supply-side approach to global warming*. MIT Press.
- Skovgaard, J., Ferrari, S. S., & Knaggård, Å. (2019). Mapping and clustering the adoption of carbon pricing policies: What polities price carbon and why? *Climate Policy*, 19(9), 1173–1185.
- Spash, C. (2010). The brave new world of carbon trading. *New Political Economy*, 15(2), 169–195.
- Steffen, A. (2017). *Predatory delay is the blocking or slowing of needed change, in order to make money off unsustainable, unjust systems in the meantime*. [Twitter]. 28 August 2017. Retrieved September 15, 2021 from <https://twitter.com/AlexSteffen/status/902164491651006464>
- Summers, L. (1991). The Lawrence Summers World Bank Memo (excerpt). Retrieved, from https://en.wikipedia.org/wiki/Summers_memo. Accessed 20 Sept 2022.
- Tang, L., & Gekara, V. (2020). The importance of customer expectations: An analysis of CSR in container shipping. *Journal of Business Ethics*, 165, 383–393.
- Vlachou, A., & Pantelias, G. (2016). The EU's emissions trading system, Part 1: Taking stock. *Capitalism Nature Socialism*, 28(2), 84–102.
- Walzer, M. (1983). *Spheres of Justice: A defense of pluralism and equality*. Basic Books.
- Wang, K., Fu, X., & Luo, M. (2015). Modeling the impacts of alternative emission trading schemes on international shipping. *Transportation Research Part A*, 77, 35–49.
- Wempe, B., & Frooman, J. (2018). Reframing the moral limits of markets debate: Social domains, values, allocation methods. *Journal of Business Ethics*, 153, 1–15.
- Zhu, M., Yuen, K. F., Ge, J. W., & Li, K. X. (2018). Impact of maritime emissions trading system on fleet deployment and mitigation of CO₂ emission. *Transportation Research Part D*, 62, 474–488.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.