

OECD-ITF & CPLC Expert Workshop

on Economic Impacts of Carbon Pricing in International Maritime Transport

January 8+9, 2018 | OECD, 2 Rue André Pascal, 75016 Paris, France

Debriefing

Context and objectives

On 8+9 January 2018, the Carbon Pricing Leadership Coalition (CPLC) and the OECD's International Transport Forum (OECD-ITF) jointly convened a workshop on the "Economic Impacts of Carbon Pricing in International Maritime Transport". The event was convened in light of the upcoming Initial Greenhouse Gas (GHG) Reduction Strategy of the International Maritime Organization (IMO), expected to be adopted in April 2018. In the context of the IMO,



climate change mitigation action has been hindered, by – among other issues – a concern that efforts to mitigate GHG emissions from international maritime transport could increase transport costs and result in unintended adverse economic consequences which impose a disproportionate burden on certain countries relative to their responsibility and capability. The workshop was intended as an **evidence-based discussion to pool experience gained and explore a common understanding on methods** for examining potential shipping GHG mitigation induced transport cost increases, and any resulting economic impacts or incidence on individual countries. The event was not convened to discuss the merits or disadvantages associated with particular measures or policies. The workshop only lightly touched on some analysis of the design of measures as the organizers plan for a more in-depth session on this specific topic to be scheduled later in the year.

Organization and attendance

The workshop was attended by a range of selected maritime stakeholders who in the past have actively contributed to the existing and emerging evidence base. Attendance comprised international bodies including the World Bank (both from the CPLC and the Transport Global

Practice), the OECD, the IEA, UNCTAD and the IMF. The University of Copenhagen, University College London and the University of Oslo were represented along with NGOs and think tanks represented by EDF, Transport and Energy, Carbon Market Watch and the WRI. The host country's Ministry of Environment was also in attendance. The private sector perspective was taken into account through the active participation of the International Chamber of Shipping, the principal international trade association for merchant ship-owners. The event was organized through a **joint effort of the CPLC** represented by the CPLC's maritime working group (Johannah Christensen, Managing Director, Head of Projects and Programmes, of the Global Maritime Forum, Tristan Smith, from University College London, and Dominik Englert, CPLC Secretariat) **as well as the OECD-IFT** represented by Olaf Merk leading the organization's work on ports and shipping at the OECD-ITF.

In total, the workshop welcomed 25 selected participants (see list of participants at the end). Expert presentations provided an overview of the existing and emerging evidence base and attendees shared experience with different data sources and modelling approaches and jointly appraised their individual strengths and weaknesses.

Summary



After an introduction by the organizers, a series of presentations (all presentations available [online](#)) set the stage for the deep dive discussion. The first set of presentations explored the **data available on seaborne trade, maritime GHG emissions and transport costs**. Presentations given by UNCTAD, UCL and OECD made clear that the vast amount of data collected related to seaborne trade is distilled annually in the Review of Maritime Transport and highlighted emerging data and analysis which estimates maritime

activity at a voyage-level and emissions-based on AIS data, and the state of play with regard to data on transport costs. In relation to the existing evidence base, the discussions throughout the two days concluded the following with regard to existing and potentially needed data:

- **Quality and level of detail:** Though there is a lot of data to work with, there are issues related to the availability and uncertainty of data, in particular for developing countries and at a granular level.
- **Availability:** There is a need for more complete data generally, in particular for small island developing states and least developed countries, not least because of the sensitivity of any impacts on these countries from any GHG mitigation policy development at IMO.

- Opportunities for linking data: There are emerging opportunities to link shipping activity to trade data more explicitly, with the potential for improvements both in accuracy and resolution of data to understand the economic impacts of GHG mitigation policy,
- Updates and improvements: Updated and improved data on transport cost is likely to be important for any detailed understanding of economic impact. OECD's essential efforts to compile transport cost ended in 2007, leaving a significant gap in the data that can be used for understanding transport costs. This gap needs to be addressed, and ideally the development of an equivalent annual dataset initiated, to ensure that more recent developments in the shipping markets can be incorporated in analyses of economic impacts.

The next two sessions centered discussion around the current understanding of the impact of GHG mitigation policy on transport cost and the economic impact of changes in transport cost. Presentations by UCL, University of Oslo, CE Delft, OECD-ITF, and the World Bank's Transport Global Practice gave a rich landscape for extensive discussion. For instance, it became clear that the existing evidence base generally concludes that there is **little expected impact on transport flows or GDP** (less than 1% respectively) related to the likely implementation of a GHG measure in maritime transport with a low price on carbon. It was noted that there are **potential unintended consequences of modal shift from sea to air transport**, if increases in shipping related transport costs are large. It was also noted that current estimations of the **price of carbon necessary to drive the necessary technological changes** (without investment in R&D, early deployment, complimentary policies etc.) **could be very high**, and so including **both low and high carbon price scenarios in economic impact analysis would be important**. Some of the existing analysis and the industry assume that the use of "out of sector offsets" might be a way to combine both emission reduction objectives and minimization of transport cost increases.

A few considerations for further analysis were also drawn out in over the course of the two days:

- Range of factors: The context is important. A measure will impact on one or more parameters impacting ship running costs, which is only one of several factors effecting maritime transport costs, which only represent a fragment of overall trade costs.
- Variety of approaches: A variety of both micro and macro-economic approaches may be necessary to determine incidence on individual states.
- Policy interaction: There could be importance of policy interactions, in particular the interaction between maritime and air transport, with regard to other policies that have impacts on transport or fuel costs (e.g. sulphur regulation, fossil fuel phase out, long term climate change impacts etc.), and NDC policy implementation.
- Sensitivity analysis: There is a need for greater sensitivity analysis with regard to the price elasticity of demand on maritime transport related to commodity type, available substitutes, and by region/country group.

The final introductory session took a light look at some potential designs of mitigation instruments. The IMF introduced a summary of a paper using a spreadsheet modelling approach to analyze the relative benefits of a pure carbon tax or a revenue neutral carbon tax applied to maritime transport. This showed that a **revenue neutral carbon tax could achieve similar levels of environmental effectiveness**, without the need to develop revenue infrastructure (e.g. a fund), and whilst helping to minimize negative economic (welfare) impacts. A **pure carbon tax**, on the other hand, **can potentially raise a significant amount of revenue**. The discussion also drew out points related to the **IMO's role in ensuring financial disclosure of climate risk** and the **importance of coherence between the IMO, ICAO and the UNFCCC**. In light of a planned follow up meeting on policy design with a different participant base, the discussion was not pursued at length.



Conclusions and next steps

In the final afternoon, the organizers turned to next steps and participants collectively developed an outline for a **potential paper** as output of the workshop. The idea of this paper would be to inform policy-makers about the state of play (incl. gaps and needs) and way forward for the economic modelling of maritime transport cost increases due to GHG mitigation policies. The CPLC will be exploring whether sufficient resources for the development of the paper can be secured and which timeline would be realistic. The headline topics for the paper would include (draft outline attached): information for policy makers; background on maritime transport costs; a summary of the current evidence base; a framing of the analysis questions; modelling approaches; and what all this means for next steps.

At the same time, an **informal modelling working group** constituted. This informal working group expressed interested in serving as a forum for collaborative and comparative work about evaluating modelling approaches in international maritime transport. T&E volunteered to steer this group which currently consists of CE Delft, IEA, IMF, OECD-ITF, UCL, UNCTAD, Vivid Economics and World Bank Transport GP.

Finally, it was concluded to aim at similar follow-up workshop on climate change mitigation in international maritime transport after the 72nd meeting of the Marine Environment Protection Committee (MEPC72) at the IMO in April 2018. This **subsequent workshop** with the potential objective to compile the manifold suggestions for policy measures suggested by different maritime stakeholders will likely take place in Europe in May 2018.

Agenda

– Day 1 –

What is the state of the art in modelling? What do we think about it?

Time	Topic	Speakers/Concept
14:00-14:15	Welcome & introduction	<ul style="list-style-type: none"> • Olaf, OECD-ITF • Tristan, UCL • Johannah, GMF • Dominik, World Bank/CPLC
14:15-15:15	A – Current understanding of seaborne trade, GHG emissions and transport cost – where do we stand?	<p><i>Chair:</i></p> <ul style="list-style-type: none"> • Tristan, UCL <p><i>Presenters (5 min each):</i></p> <ul style="list-style-type: none"> • Mathis, UNCTAD (seaborne trade data) • Tristan, UCL (GHG emissions data) • Jane, OECD (transport cost data)
15:15-15:30	<i>Coffee break</i>	
15:30-16:30	B – Impact of GHG mitigation policy on transport costs – how much do we know already?	<p><i>Chair:</i></p> <ul style="list-style-type: none"> • Ian, IMF <p><i>Presenters (8 min each):</i></p> <ul style="list-style-type: none"> • Jon, University of Oslo • Tristan, UCL (GHG mitigation cost vs technology cost)
16:30-16:45	<i>Coffee break</i>	
16:45-17:45	C - The economic impact of changes in transport cost – does the existing work tell us what we need to know in the context of shipping?	<p><i>Chair:</i></p> <ul style="list-style-type: none"> • Olaf, OECD-ITF <p><i>Presenters (5 min each):</i></p> <ul style="list-style-type: none"> • Ronald, OECD-ITF • Dagmar, CE Delft • John, Vivid Economics • Heinrich, World Bank, Transport GP
17:45-18:00	Wrap-up, conclusions and next steps for Day 2	<ul style="list-style-type: none"> • Tristan, UCL
19:30	CPLC Shipping Dinner <i>Restaurant Al-Mankal, 8 Avenue de New York, 75116 Paris</i>	

– Day 2 –

What is still missing? What are the next steps towards progress in properly modelling transport cost increases and economic impacts?

Time	Topic	Speakers/Concept
8:30-9:30	D – Exploring the choice and design of mitigation instruments	<p><i>Chair:</i></p> <ul style="list-style-type: none"> Johannah, GMF <p><i>Presenters (8 min each):</i></p> <ul style="list-style-type: none"> Ian, IMF Jan, WRI – New Climate Economy
9:30-9:45	<i>Coffee break</i>	
9:45-11:00	E – Improving our understanding of seaborne trade, GHG emissions and transport costs	
11:00-11:15	<i>Coffee break</i>	
11:15-12:30	F – Fostering robust estimates of the impact of GHG mitigation policy on transport costs	
12:30-13:30	<i>Lunch break</i>	
13:30-14:45	G – Furthering applicable estimates of the economic impacts of changes in transport cost	
14:45-15:00	<i>Coffee break</i>	
15:00-16:00	Wrap-up, conclusions and next steps	<ul style="list-style-type: none"> Tristan, UCL

List of participants

	Name	Title	Organization
1	Aoife O'Leary	Legal Analyst	EDF Europe
2	Beatriz Martinez Romera	Assistant Professor	University of Copenhagen
3	Dagmar Nelissen	Senior Researcher	CE Delft
4	Dominik Englert	Economist (Organizer)	World Bank/CPLC Secretariat
5	Goran Dominioni	Researcher	University of Rotterdam/Cornell University
6	Heinrich Bofinger	Consultant	World Bank/Transport GP
7	Ian Parry	Principal Environmental Fiscal Policy Expert	International Monetary Fund
8	Isabelle Rojon	Researcher	University Maritime Advisory Services
9	Jan Corfee-Morlot	Senior Advisor to the New Climate Economy	World Resources Institute
10	Jane Korinek	Trade Policy Analyst	OECD
11	Johannah Christensen	Managing Director, Head of Projects and Programmes (Organizer)	Global Maritime Forum
12	John Ward	Managing Director	Vivid Economics
13	Jon Strand	Professor	University of Oslo
14	Kelley Kizzier	Consultant (Organizer)	World Bank/CPLC Secretariat
15	Kelley	Policy Officer - Aviation and Land Use	Carbon Market Watch
16	Lucie Kirstein	Junior Policy Analyst	OECD-ITF
17	Mathis Weller	UNCTAD	Junior Professional Officer
18	Nicolas Udrea	IMO Negotiator	French Ministry of Environment
19	Olaf Merk	Administrator Ports and Shipping (Organizer)	OECD-ITF
20	Renske Schuitmaker	Transport & Energy Analyst	International Energy Agency
21	Ronald Halim	Modeler/Analyst	OECD-ITF
22	Simon Bennett	Director Policy and External Relations	International Chamber of Shipping
23	Thomas Earl	Data Analyst	Transport & Environment
24	Tristan Smith	Reader in Energy and Shipping (Organizer)	University College London
25	Yazmin Maguey Barrera	Research and Policy Analysis Assistant (Organizer)	OECD-ITF