

EC 380: Lecture 10

Environmental Policy: International Agreements

Philip Economides

Fall 2022

Prologue

Recap

Previously

- A variety of trade agreements exist under current international norms
- Agreements riddled with uncertainty and not always welfare enhancing
- Multi-year negotiations can make or break a domestic economy
- Even if policymakers agree multilateral purchase commitments with respect to China, they should learn right lessons from US experiences

Recap

Previously

- A variety of trade agreements exist under current international norms
- Agreements riddled with uncertainty and not always welfare enhancing
- Multi-year negotiations can make or break a domestic economy
- Even if policymakers agree multilateral purchase commitments with respect to China, they should learn right lessons from US experiences

Today

- How do international agreements fare with respect to the environment?

Background

The **WTO** nor any other central body presides over international agreements with respect to the environment

Background

The **WTO** nor any other central body presides over international agreements with respect to the environment

There are some 200 multilateral environmental agreements.

Background

The **WTO** nor any other central body presides over international agreements with respect to the environment

There are some 200 multilateral environmental agreements.

- Each country is a producer of pollution that is then distributed globally

Background

The **WTO** nor any other central body presides over international agreements with respect to the environment

There are some 200 multilateral environmental agreements.

- Each country is a producer of pollution that is then distributed globally
- These **externalities** are common to each country, but only a lesser proportion of costs are borne by any particular emitter of pollution

Background

The **WTO** nor any other central body presides over international agreements with respect to the environment

There are some 200 multilateral environmental agreements.

- Each country is a producer of pollution that is then distributed globally
- These **externalities** are common to each country, but only a lesser proportion of costs are borne by any particular emitter of pollution
- This leads to a **failure of free markets** that requires intervention across government

Notable Agreements

- Convention on International Trade Endangering Species

Notable Agreements

- Convention on International Trade Endangering Species
- Montreal Protocol on Substances that Deplete Ozone Layer

Notable Agreements

- Convention on International Trade Endangering Species
- Montreal Protocol on Substances that Deplete Ozone Layer
- IMO 2020 Cutting Sulphur Oxide Emissions

Notable Agreements

- Convention on International Trade Endangering Species
- Montreal Protocol on Substances that Deplete Ozone Layer
- IMO 2020 Cutting Sulphur Oxide Emissions

WTO still influences environment indirectly. **GATT Article XX:**

subject to the requirement that such measures are not applied in a manner which would constitute a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures (b) necessary to protect human, animal or plant life or health, ... (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.

Issues

Tuna-Dolphin Case

Issues

Tuna-Dolphin Case

- In 1991, before existence of WTO, US banned tuna imports from Mexico due to fishermen not using dolphin-friendly nets

Issues

Tuna-Dolphin Case

- In 1991, before existence of WTO, US banned tuna imports from Mexico due to fishermen not using dolphin-friendly nets
- GATT concluded US could not ban imports because US applied restriction to **production process method** and not the product itself

Issues

Tuna-Dolphin Case

- In 1991, before existence of WTO, US banned tuna imports from Mexico due to fishermen not using dolphin-friendly nets
- GATT concluded US could not ban imports because US applied restriction to **production process method** and not the product itself

"GATT rules did not allow one country to take trade action for the purpose of attempting to enforce its own domestic laws in another country - even to protect animal health or exhaustible natural resources".

Issues

Case	Issue	Outcome
Tuna-Dolphin	Ban on imports of Mexican tuna by US not caught in nets safe for dolphins	GATT ruled in favor of Mexico. Strong consumer response led to net change.
Shrimp-Turtle	US ban on imports of shrimp from India, Malaysia, Pakistan not caught in nets safe for sea turtles	WTO ruled against US but US would still require use of nets provided adequate notice and consultation were pursued.
Gasoline	US ban on imports of gasoline from Venezuela and Brazil because gas exceeded maximum allowed smog-causing chemical (under US Clean Air act)	Ruled against US for violating equal treatment between foreign and domestic producers.
Biotech Food	Ban on GMO food or crops by the EU since 1998	WTO ruled against EU citing need for judgement based on scientific risk assessments.

Issues

Case	Issue	Outcome
Tuna-Dolphin	Ban on imports of Mexican tuna by US not caught in nets safe for dolphins	GATT ruled in favor of Mexico. Strong consumer response led to net change.
Shrimp-Turtle	US ban on imports of shrimp from India, Malaysia, Pakistan not caught in nets safe for sea turtles	WTO ruled against US but US would still require use of nets provided adequate notice and consultation were pursued.
Gasoline	US ban on imports of gasoline from Venezuela and Brazil because gas exceeded maximum allowed smog-causing chemical (under US Clean Air act)	Ruled against US for violating equal treatment between foreign and domestic producers.
Biotech Food	Ban on GMO food or crops by the EU since 1998	WTO ruled against EU citing need for judgement based on scientific risk assessments.

Considerable outside pressure and loopholes have allowed each of these policies to be applied in the end.

Trade & Environment

Does Trade Help or Harm the Environment?

Trade & Environment

Does Trade Help or Harm the Environment?

Externalities: These are affects of one individuals production or consumption on other individuals.

Trade & Environment

Does Trade Help or Harm the Environment?

Externalities: These are affects of one individuals production or consumption on other individuals.

- *Positive externalities* benefit the other users (e.g. scientific discovery) and *negative externalities* harm other users (e.g. indoor smoking)
- *Market failure* is a scenario in which positive or negative effects of externalities on other people are not fully paid for by the producer
- For example, if tech created by firm 1 is freely accessed by firm 2 with no payment made

Trade & Environment

Does trade incentivize or disincentive the production of externalities?

Trade & Environment

Does trade incentivize or disincentive the production of externalities?

There are some cases where having more trade raises the externalitiy and lowers welfare, and others where the opposite takes place.

Trade & Environment

Does trade incentivize or disincentive the production of externalities?

There are some cases where having more trade raises the externalitiy and lowers welfare, and others where the opposite takes place.

If producing a **negative externality** domestically, trade \implies lower market price \implies lowers domestic quantity supplied

Trade & Environment

Does trade incentivize or disincentive the production of externalities?

There are some cases where having more trade raises the externalitiy and lowers welfare, and others where the opposite takes place.

If producing a **negative externality** domestically, trade \implies lower market price \implies lowers domestic quantity supplied

Less domestic production implies less of the externality being produced too. **Welfare improves and externality lowers.**

Trade & Environment

Does trade incentivize or disincentive the production of externalities?

There are some cases where having more trade raises the externalitiy and lowers welfare, and others where the opposite takes place.

If producing a **negative externality** domestically, trade \implies lower market price \implies lowers domestic quantity supplied

Less domestic production implies less of the externality being produced too. **Welfare improves and externality lowers.**

If the production externality had been "a chance at triggering technological advancement", trade would contribute towards less of the positive externality and **harm welfare.**

Examples

Trade in Fish:

Fish treated as common property. 29% of fish and seafood species have collapsed, with populations declining by at least 90% between 1950 and 2003.

Examples

Trade in Fish:

Fish treated as common property. 29% of fish and seafood species have collapsed, with populations declining by at least 90% between 1950 and 2003.

Since fish are an international resource, no single party **fully internalizes negative externalities** of producing these goods.

Examples

Trade in Fish:

Fish treated as common property. 29% of fish and seafood species have collapsed, with populations declining by at least 90% between 1950 and 2003.

Since fish are an international resource, no single party **fully internalizes negative externalities** of producing these goods.

Requires **international agreements** which assign property rights and limit overharvesting.

Examples

Trade in Fish:

Fish treated as common property. 29% of fish and seafood species have collapsed, with populations declining by at least 90% between 1950 and 2003.

Since fish are an international resource, no single party **fully internalizes negative externalities** of producing these goods.

Requires **international agreements** which assign property rights and limit overharvesting.

In absense of these measures, international trade enlarges the market for overfished products.

Examples

Trade in Buffalo:

1870 saw London develop **new technology** for tanning buffalo hides, causing their demand to skyrocket.

Examples

Trade in Buffalo:

1870 saw London develop **new technology** for tanning buffalo hides, causing their demand to skyrocket.

A great deal of overhunting resulted in the near extinction of the species, following technology-spurred trade growth.

Examples

Trade in Buffalo:

1870 saw London develop **new technology** for tanning buffalo hides, causing their demand to skyrocket.

A great deal of overhunting resulted in the near extinction of the species, following technology-spurred trade growth.

A lack of property rights and government intervention contributed towards this great massacre of the species.

Examples

Trade in Buffalo:

1870 saw London develop **new technology** for tanning buffalo hides, causing their demand to skyrocket.

A great deal of overhunting resulted in the near extinction of the species, following technology-spurred trade growth.

A lack of property rights and government intervention contributed towards this great massacre of the species.

The **Convention on International Trade in Endangered Species** (CITES) now protects over 5,000 animal and 29,000 plant species in order to avoid such outcomes through trade.

Examples

Trade in Solar Panels:

More panels implies **less emissions** since per unit electricity consumption would be generated through increasingly greener sources.

Examples

Trade in Solar Panels:

More panels implies **less emissions** since per unit electricity consumption would be generated through increasingly greener sources.

A reduction in solar panel tariffs \implies lower price of electricity, more use of it and **less negative pollution externalities**.

Examples

Trade in Solar Panels:

More panels implies **less emissions** since per unit electricity consumption would be generated through increasingly greener sources.

A reduction in solar panel tariffs \implies lower price of electricity, more use of it and **less negative pollution externalities**.

Trade can contribute towards improvements in the environment as well as deterioration.



Contents lists available at [SciVerse ScienceDirect](#)

Journal of Environmental Economics and Management

journal homepage: www.elsevier.com/locate/jeem



Trade and the greenhouse gas emissions from international freight transport[☆]



Anca Cristea^a, David Hummels^{b,*}, Laura Puzzello^c, Misak Avetisyan^d

^a University of Oregon, Eugene, OR, USA

^b Purdue University and NBER, Department of Economics, 100 S Grant St, 403 W. State Street, West Lafayette, IN 47907, USA

^c Monash University, Melbourne, VIC, Australia

^d University of Southern California, Los Angeles, CA, USA

ARTICLE INFO

Article history:

Received 6 June 2011

Available online 1 August 2012

Keywords:

Greenhouse gas emissions

International transport emissions

World trade growth

International trade by transport mode

ABSTRACT

We collect extensive data on worldwide trade by transportation mode and use this to provide detailed comparisons of the greenhouse gas emissions associated with output versus international transportation of traded goods. International transport is responsible for 33 percent of world-wide trade-related emissions, and over 75 percent of emissions for major manufacturing categories. Including transport dramatically changes the ranking of countries by emissions per dollar of trade. We systematically investigate whether trade inclusive of transport can lower emissions. In one quarter of cases, the difference in output emissions is more than enough to compensate for the emissions cost of transport. Finally, we examine how likely patterns of global trade growth will affect modal use and emissions. Full liberalization of tariffs and GDP growth concentrated in China and India lead to transport emissions growing much faster than the value of trade, due to trade shifting toward distant trading partners.

© 2012 Elsevier Inc. All rights reserved.

Empirics

Per dollar value exports, which countries have the cleanest 2004 exports?

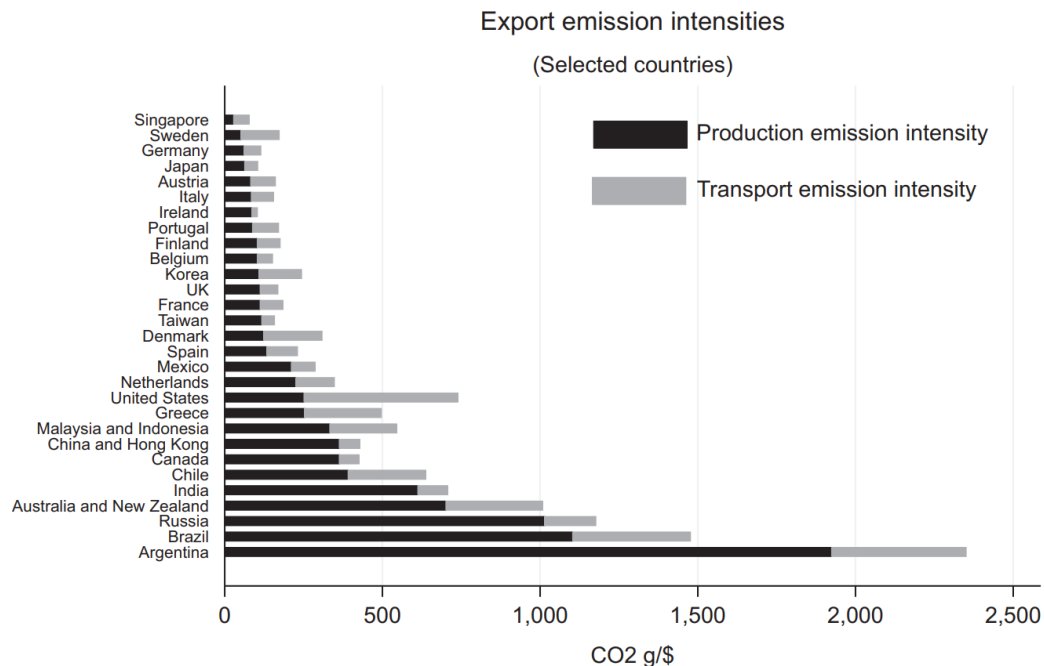


Fig. 4. Output and transport emission intensities of exports, by country. *Note:* Emission intensities are calculated based on Eq. (3) for transport, and Eq. (4) for output. The aggregation to the region level uses trade rather than output weights. The units are grams of CO₂ per dollar of exports. Data is for base year 2004. Countries are ordered by increasing production emission intensity of exports.

Empirics

- International transportation is a small fraction of **overall emissions** but a surprisingly large fraction of **trade-related emissions**
- $\frac{2}{3}$ of trade-related emissions in US exports are due to international transportation
- Many exporters and products that look relatively "clean", when focusing only on output emissions, are in fact **heavy emitters**, once incorporating transportation
- Under **trade liberalization**, transport emissions will become increasingly important, growing **twice as fast** as the emission from trade-related output

In Summary

- Welfare gains and losses from trade agreements are complex and require case-wise assessment
- Welfare gains and losses from externalities and trade are complex, demanding similar scrutiny
- Market failures require direct government intervention through quotas, taxes and property right allocations
- As trade liberalizes, the externalities associated with relocating goods is expected to rise (further trade partners become more accessible)