Economics of Globalization

Sciences Po Saint-Germain-en-Laye

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- What policies to limit climate change and environmental damages?
  - Carbon taxation (Pigouvian concept of taxes to internalize externalities).
  - Alternative policies: regulatory standard and bans, industrial policies, etc.

Climate policy and globalization

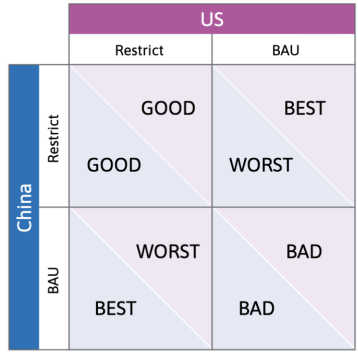
Domestic policies and globalization

- Why is it so hard to make countries coordinate at the world level?

Climate policy and globalization

Domestic policies and globalization

- Why is it so hard to make countries coordinate at the world level?
  - You gain if you free ride!



How does climate policy affect trade?

The Pollution Haven Hypothesis and the leakage effects

- Difference in regulation can affect comparative advantages $\longrightarrow$ regulatory competition.
- Countries with higher environmental regulation will have a comparative advantage in clean industries.
- Countries with lower regulation will have a comparative advantage in dirty industries.
- Trade implies the specialization of the regulating country in clean industry and on the other countries in polluting industries.
- Unregulated countries become pollution havens.

How does climate policy affect trade?

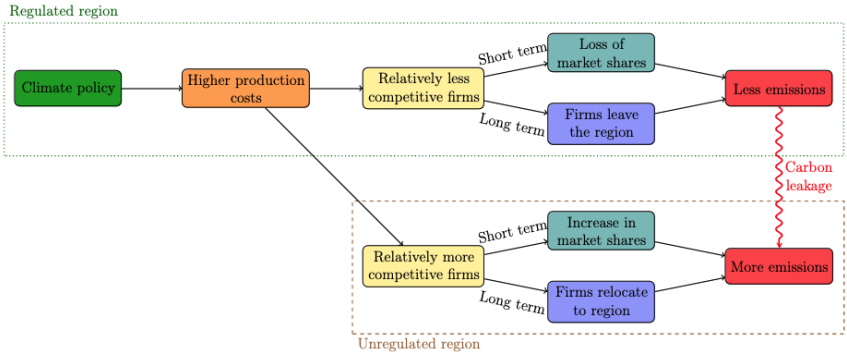
The Pollution Haven Hypothesis and the leakage effects

- Leakage: When a coalition of countries regulate pollution emission, this might increase emissions in non-coalition countries.
  - Through the pollution haven effect.
  - Through the price of fossil fuels: raising the cost of fossil fuel decreases demand, which decreases price. It might encourage the use of fossil fuels in countries that do not restrict their use.
- Leakage effects reduce the efficacy of domestic policies: carbon emissions embodied in the exports of countries that did not ratify the Kyoto protocol increased by 8%.
- Carbon border-adjustment mechanisms (CBAM) can mitigate the effect of leakage by introducing tariffs that vary with the pollution-content of imports.

How does climate policy affect trade?

The Competition channel

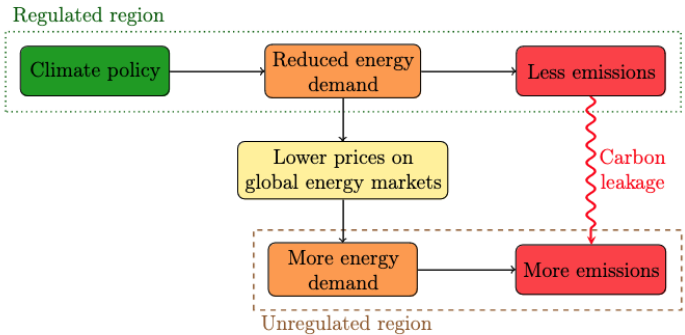
Figure 2: A schematic view of the competition channel



How does climate policy affect trade?

The Energy channel

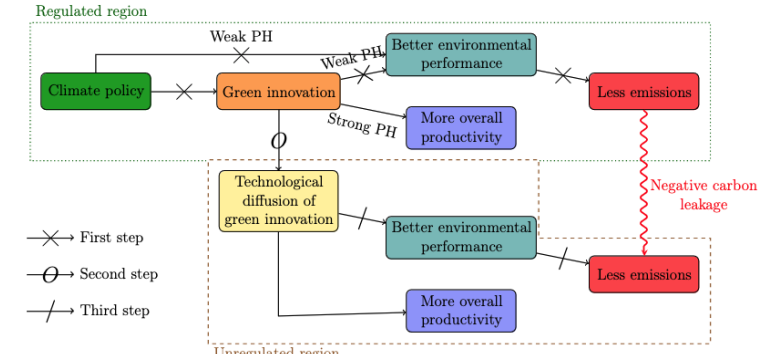
Figure 3: A schematic view of the energy channel



How does climate policy affect trade?

The Innovation channel

Figure 4: A schematic view of the innovation channel



Note: PH = Porter Hypothesis

Porter hypothesis: strict environmental regulations can induce efficiency and encourage innovations that help improve commercial competitiveness.

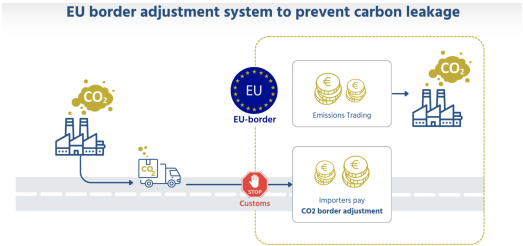
How does climate policy affect trade?

Addressing Leakage effects.

- EU-CBAM in place from October 2023 to avoid leakage effects.
- Main objective: ensure the carbon price of imports is equivalent to the carbon price of domestic production.
- Applies on carbon-intensive goods and goods at risk of leakage effects.
  - Cement, iron and steel, aluminium, fertilizers, electricity and hydrogen
- Capture 50% of the emissions in the European Trading Scheme when fully phased-in.

How does climate policy affect trade?

Addressing Leakage effects.



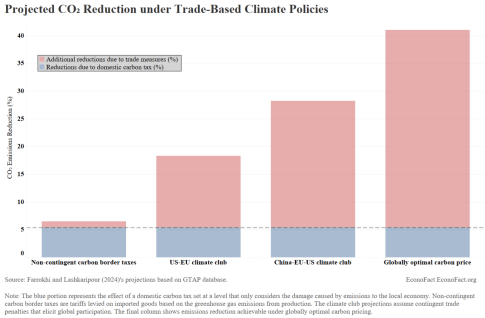
How does climate policy affect trade?

Addressing Leakage effects.

- Carbon Border taxes might have limited effects (Farrokhi and Lashkaripour, 2023).
  - They do not affect non-traded goods that are responsible of a significant fraction of carbon emissions.
  - 2/3 of global carbon emissions come from industries with a low trade-to-GDP ratio.
- Climate Clubs proposed by William Nordhaus can be more efficient.
  - Within the club, countries set up high carbon taxes.
  - They tax trade with countries that are not members of the club.
  - Problem: Need to put many big countries in the club to make it work.

How does climate policy affect trade?

Addressing Leakage effects.



Trade and investment policy

The environmental bias of trade policy.

- Carbon-intensive goods face lower than average tariffs.
  - Equivalent to a subsidy to trade in embodied carbon emissions of between $85 and $120 per ton.
- Not only trade participate to carbon emissions, but its structure might have encouraged it.
- Explanation: tariffs tend to be lower for upstream goods $\longrightarrow$ unintended consequence of trade policy.

Trade and investment policy

Openness and environmental policy

- Openness might constrain environmental policy: trade policy limits the use of many instruments (tariff, quotas, subsidies).
- Trade liberalization might be compensated by weak environmental policies or specific product standards that can be seen as a subsidy to domestic producers.
- Risk of lobbying increases.
  - Closed economy: regulations increase costs which are partly passed-through consumers.
  - Open-economy: prices are less sensible. Producers tend to bear the costs and will be more resistant to tighter environmental regulation.
- Regulatory competition can also go through the investment policy (cf. ISDS discussed in previous classes).

Trade and investment policy

Using trade policy

- Trade policy can be used to restrict products that cause environmental damages.
  - Chinese restrictions on the export of rare earths to limit pollution.
  - Generated price increase: U.S. Canada, the EU and Japan filled a complaint at WTO.
  - WTO ruled against China with the motive that other instruments were available and that export quotas were “designed to achieve industrial policy goals rather than conservation”.

$\longrightarrow$ Environmental policies might be confounded by industrial policy.

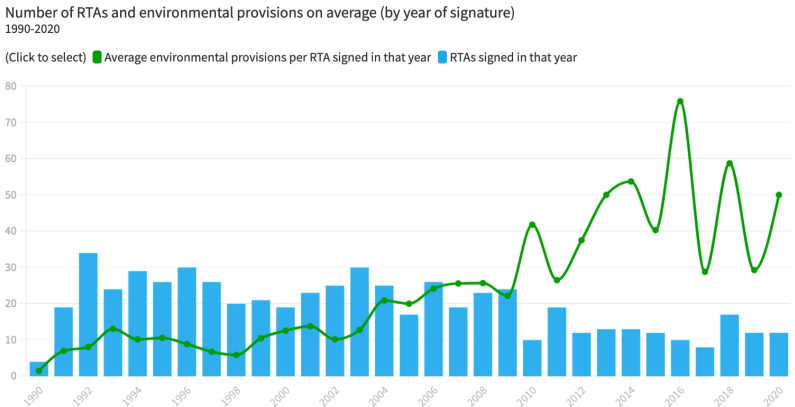
Trade and investment policy

Using trade policy

- Defenders of trade agreements state that it can be used for the diffusion of environmental norms.
- The EU pushes for this vision of trade agreements, *e.g.*, for the EU-Mercosur agreement. But is it enough, or is it greenwashing?
  - Introduce a dispute settlement mechanism to enforce workers' right and environmental provisions.
- Environmental provisions in PTA seem to work by reducing dirty exports and increasing green exports.
- Questions remain unanswered:
  - Is it working?
  - Does it spill-over to domestic production?
  - Are there leakage effects?

Trade and investment policy

Using trade policy



Source: OECD work on Regional Trade Agreements and the environment: Policy Perspectives (2023)

Trade and investment policy

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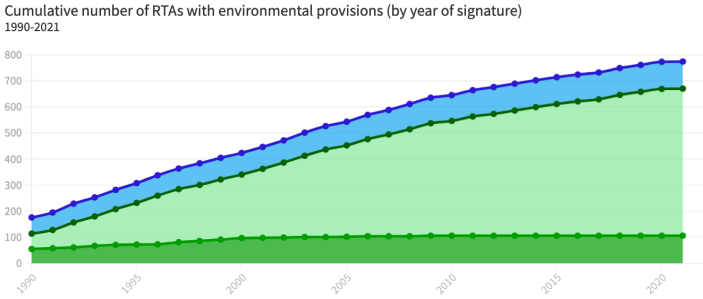
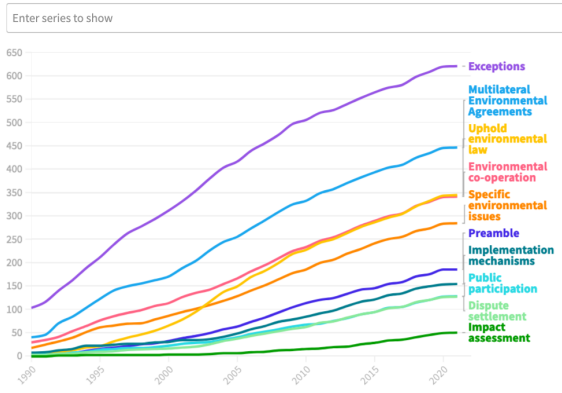


Trade and investment policy

Using trade policy

Cumulative number of RTAs with environmental provisions (by year of signature and by category)
1990-2021



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General conclusion of the course

- The economics of globalization.
  - Globalization studied in a broad sense: trade, multinational firms, taxation, inequalities, environment.
  - How does the economic activity (production, consumption, distribution) affects and is affected by globalization?
  - Goal: Be able to an answer general-interest questions about globalization with the tools of economic analysis.
    - How does globalization affect welfare? How does globalization affect inequalities? How do we address the negative consequences of globalization?
    - Need to know about the important trade-offs.
    - Having the trade-offs in mind, policy choices depend on political/moral views.

General conclusion of the course

- Set of theoretical tools to analyze globalization.
- Set of historical facts and empirical regularities.
- Policy analysis.

General conclusion of the course

Theoretical tools

- Trade models: country differences in productivity (technology), institutions and policy generate relative cost differences, and then comparative advantages. Gains come from specialization and exchange.
  - Ricardian model: productivity differences drive trade between countries. Trade increase welfare.
  - Hecksher-Ohlin model (+ Stolper-Samuelson theorem): trade arise from the difference of endowments between countries. Trade creates net gain but there are winner and losers from trade: redistribution is necessary.
  - Fundamental link between trade and inequalities.
- Trade can also arise from economies of scale.
  - New trade models can explain intra-industry trade and trade when there are no productivity or endowment differences.
- The gravity equation.

General conclusion of the course

Theoretical tools

- Trade policy
  - Economic Analysis of a tariff (*the triangles*).
  - The trade policy can be welfare-enhancing (for large countries that can manipulate trade prices, not for small countries).
- Basic determinants of multinational firms activity.
  - Proximity-concentration trade–off: FDI is preferred when trade costs are large, fixed costs are small, foreign markets are large
- Environmental regulations create leakage effects through three channels (competition, energy and innovation).

General conclusion of the course

Historical Facts and Empirical Regularities

- History of globalization and trade policies.
- The current state of globalization.
- Globalization and inequalities.
- The regulation of globalization: MNEs, international taxation, environment.

The Exam I

- Multiple choice questions.
  - *e.g.* In country A, producing producing good 1 takes 3 hours, and producing good 2 takes 6 hours. In country B, producing good 1 takes 5 hours and producing good 2 take 20. Hence:
    1. Country A has a comparative advantage for both goods.
    2. Country A has a comparative advantage for good 1 and country B for good 2.
    3. Country A has a comparative advantage for good 2 and country B for good 1.
    4. Country A has no comparative advantage.

    Keeping the parameters of question 1: if we move from autarky to free trade, and assuming that the world demand is such that both countries fully specialize:
    1. The relative price of good 1 will rise in country A.
    2. The relative price of good 2 will rise in country A.
    3. Relative prices will remain the same for both goods.
    4. Relative prices will move, but we can't say anything about the direction of the change.

The Exam II

If we observe a decrease in the ratio of value-added of exports over gross exports of a country, it suggests that:

1. The country is exporting more intermediate goods
2. The fragmentation of the production process has reached its limits.
3. The country is more integrated in global value chains.
4. None of the above.

- Exercise.
  - Course questions.
  - Graphical interpretation.
  - Use of course concepts to answer th case study.

The Exam III

- Open Question.
  - What is the impact of globalization on inequalities within and between countries? How can governments play a role to regulate these effects?
  - The EU has recently launched an investigation in order to set up a tariff against the import of electric vehicles from China. You will the discuss the rationale and the consequences of such trade policy to answer the question: Should a government limit the import of foreign products in order to protect its national economy?

Thank you and good luck for the exam

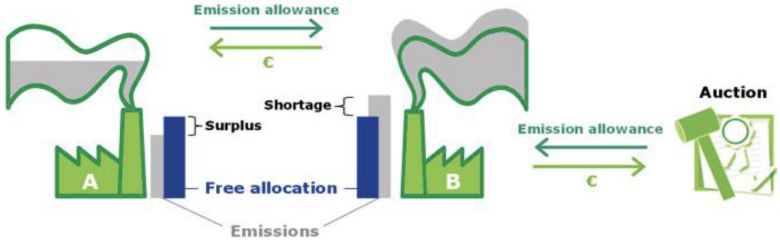
Emissions Trading Schemes

- ETS are cap and trade systems designed to limit the total amount of GHG that can be emitted.
- To emit GHG, firms need permit that they can trade among each other.
  - Given that firms vary in their production technologies, how will the total amount of required abatement be divided among them?
  - The abatement should be done by the firms for which this is least costly because this saves scarce resources that can be used elsewhere.

Emissions Trading Schemes

- The total number of permits is fixed so that the government can control the total number of emissions.
  - Works for *in-scope* industries *e.g.* 45% of the EU emissions are within the EU-ETS, 80% for the Californian ETS, 14% at the World level.
  - In the EU, private transportation, heating and agriculture are out of the scope.
- ETS in an open-economy: risk of leakage effects!
- As it is a market mechanism, it tends to privilege wealthy actors.
- What if the cost of carbon is lower than the social cost of carbon (between 100$ and 1000$ according to estimations)?
  - The externality is only partly internalized and firms might be encouraged to pollute.

Emissions Trading Schemes



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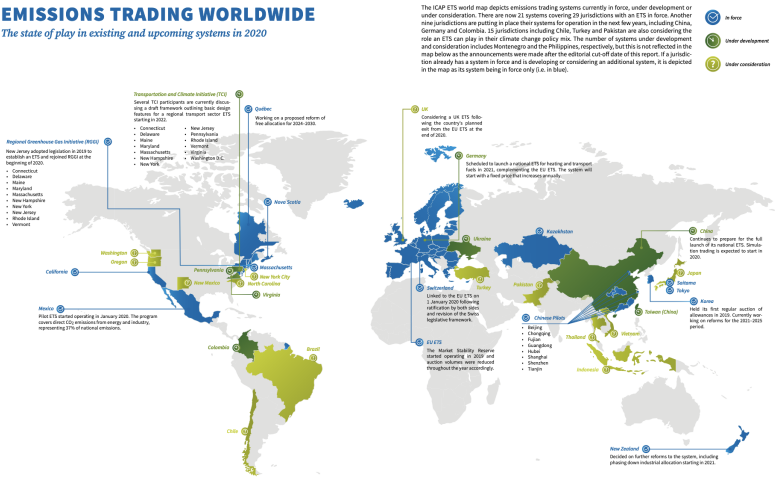

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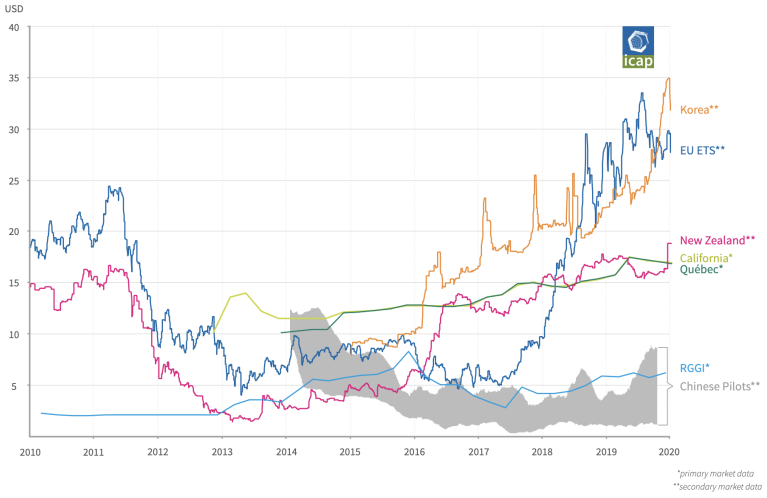
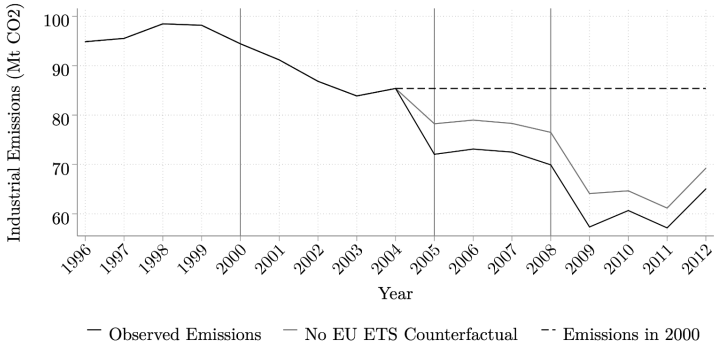


Emissions Trading Schemes

Figure 4: The Effect of the EU ETS on Aggregate Emissions Reductions



Notes: The black line presents the aggregate time series for industrial emissions in France, measured in millions of tonnes of CO_2. The dark gray line represents counterfactual emissions in the absence of the EU ETS, using our difference-in-differences estimates and assuming that 75% of industrial emissions are regulated. The dashed black line represents the level of emissions in 2000 as a benchmark.Source: Authors calculations based on French microdata and Eurostat data.

Emissions Trading Schemes

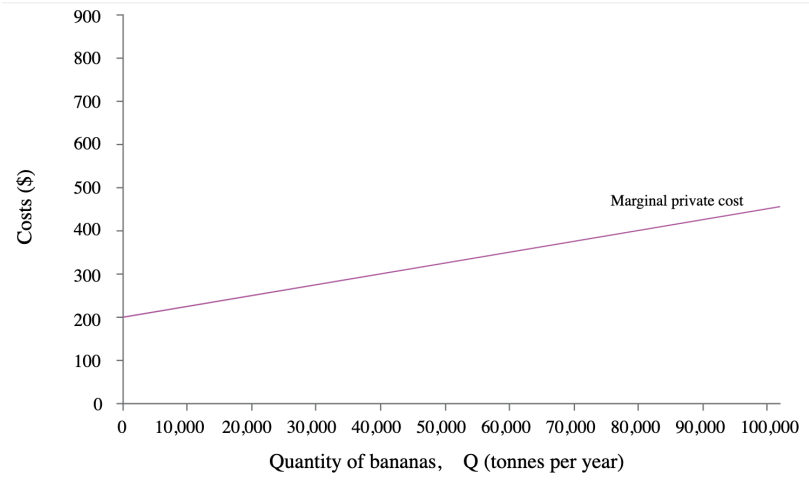
EU ETS Leakage effects.

- Competition channel: no evidence
- Energy channel: no leakage through this channel because the EU demand for fossil fuel has not yet significantly decreased (because of fuel intensive activities are out of scope).
- Innovation channel: limited impact on clean energy innovation.

$\longrightarrow$ Current estimations are based on the first phases of the implementation of EU ETS (low price, free allocations). More important effects are expected with higher carbon prices.

Back

Pigouvian Taxes



Back

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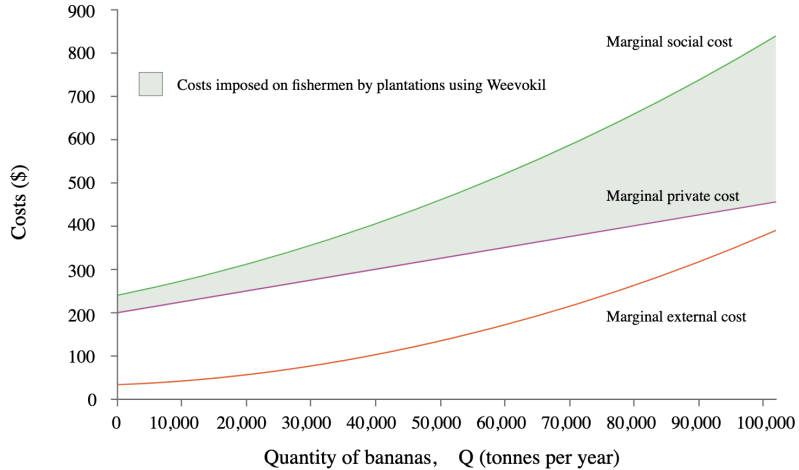

Back

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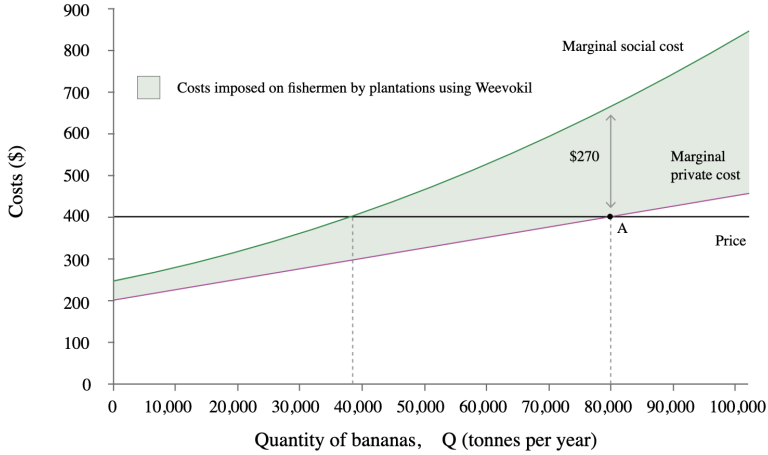

Back

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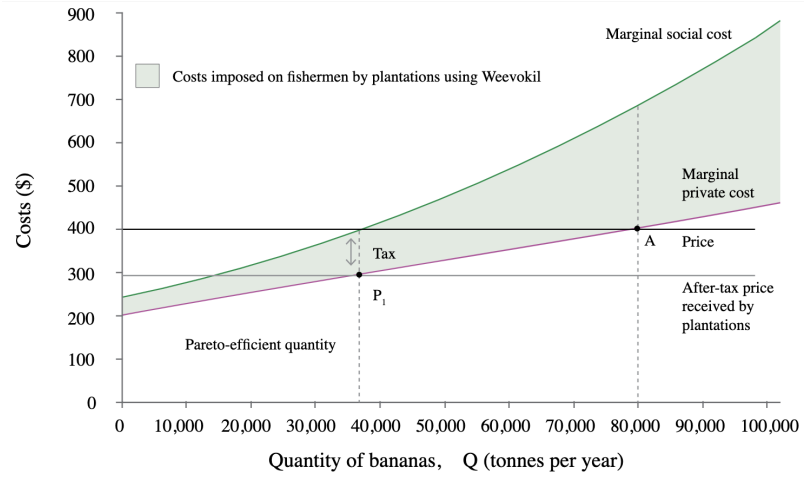

Back