

Does Trade Matter? The Environment and Globalization

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*The opinions expressed in this presentation are those of the author and do not necessarily reflect those of the Federal Reserve Bank of Chicago or the Federal Reserve System.

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The main points

- Economic theory predicts that freer trade should affect the environment. Theoretical models predict more pollution in some economies and less in others according to differences in preferences, factor endowments, and technologies.
- Empirical research has had a difficult time verifying that freer trade has a robust and significant effect on a variety of measures of environmental quality.
- Economic theory tends to support the idea that various trade sanctions (e.g. antidumping duties and safeguard tariffs) could be used to achieve environmental objectives.
- However, empirical research on trade restrictions suggests that...
 - in a non-environmental context, the cost of using trade restrictions exceeds the benefit at the level of both national and world welfare and
 - implementation of transparent environmentally-motivated trade restrictions (e.g. an anti-eco-dumping duty) is probably not feasible.

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Overview

1. The economic literature on trade, growth and the environment.
2. The use of WTO-authorized trade sanctions in a non-environmental context: theory and evidence.
3. Could and should WTO-authorized trade sanctions be used to address environmental concerns?

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Trade, Growth and the Environment (I)

How do trade and growth affect the environment via...
...the scale of production?
...the composition of production?
...the technique of production?

- The scale of production, increased through growth or through increased trade,
 - is expected to lead to **more pollution**.
- The composition of industries could become
 - **less polluting** if economic growth is associated with increased demand for less-polluting service industries.
 - **more or less polluting**, depending on whether increased trade leads to specialization toward cleaner or dirtier industries.
- The technique of production could become
 - **cleaner** if higher incomes associated with increased trade and economic growth imply a greater demand for a clean environment and, in a democracy, implementation of policies that support or require the adoption of cleaner production technologies.
 - **cleaner** if increased trade is associated with more technology transfer.
 - **dirtier** if increased competition associated with trade leads governments to adopt less stringent environmental policies.

These factors offer competing, but not necessarily exclusive, explanations for the existence of an environmental Kuznets curve (EKC).

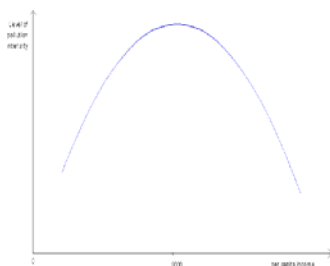
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The environmental Kuznets curve

In a cross-sectional study of per capita income and environmental pollutants, Grossman and Krueger (GJE, 1995) find evidence of an inverse-U relationship.

But, Harbaugh, Levinson and Wilson (REStat, 2002) find the relationship is **not robust** to changes in the data sample.

The bottom line: higher incomes are associated with cleaner environments, but we don't know precisely why? Is it due to relative growth of factors, changes in preferences, and/or the policy response function?



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Trade, Growth and the Environment (II)

Copeland and Taylor (AER, 1995; JIE, 1999; JEL, 2004) develop a series of models that explore how pollution regulation affects a country's comparative advantage and, hence, trade flows.

They emphasize a distinction between two concepts in the literature:

- Pollution haven effect: on the margin, pollution regulation will affect plant location decisions and trade flows. All else equal, weaker pollution regulation increases a country's net exports of dirty goods.
- Pollution haven hypothesis: pollution intensive industries will relocate to countries with weaker environmental regulations. Environmental policy is such an important determinant of trade flows, its effects swamp those of factor abundance and technology.

Some recent papers find evidence of the pollution haven effect

- Antweiler, Copeland and Taylor (AER, 2001)
- Keller and Levinson (REStat, 2002)
- Ederington, Levinson, and Minier (REStat, 2005)

Moreover, Antweiler, Copeland and Taylor (AER, 2001) reject the pollution haven hypothesis in favor of factor proportions as a determinant of trade flows.

Copeland and Taylor (JEL, 2004) argue that much of the empirical evidence for the existence of pollution havens (Low and Yeats, 1992; Ratnayake, 1998; Lucas, et al, 1992; Birdsall et al, 1992; Mani et al, 1997) could also be explained by economic development in poor countries.

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The use of WTO-authorized trade sanctions in a non-environmental context (I)

- Safeguards
 - a temporary tariff or quota that is used to protect a domestic industry against "fair" foreign competition
 - should be nondiscriminatory, but often aren't
 - should be used when imports increase "unexpectedly"
 - varying degrees of political influence in their application
- Economic theory predicts that safeguard tariffs can facilitate technological catch-up by an import-competing firm...
 - ...if the safeguard has a credible termination date
 - Matsuyama, AER, 1990
 - Miyagiwa and Ohno, AER, 1995
 - ...if the safeguard is non-discriminatory
 - Crowley, 2002
- The empirical evidence finds little evidence of successful technology adoption resulting from tariff protection...
 - USITC, 1982
 - Harley-Davidson experience
- ...but suggests that safeguards have large effects on trade flows and, consequently, are costly to consumers.
 - Hansen and Prusa, WE, 1995
 - Bown and Crowley, 2005

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The use of WTO-authorized trade sanctions in a non-environmental context (II)

- Antidumping Duties
 - a tariff used to protect a domestic industry against "unfair" foreign competition
 - originally intended to offset price undercutting of foreign exporters engaged in anticompetitive practices
 - are discriminatory
 - varying degrees of political influence in their application
- Economic theory predicts that antidumping duties lower an importing country's welfare in most situations. However, they can generate welfare gains...
 - ...when foreign firms are pricing below average total cost through productivity gains in LBD industries (Gruenspecht, JIE, 1988) by shifting rents from foreign firms (Crowley, 2002)
 - ...when foreign firms are price discriminating because the threat of an AD duty can yield higher domestic output in earlier periods (and thus higher welfare) Reites, IER, 1993
 - ...when dumping is just a negative world price shock because it acts as insurance and minimizes adjustment costs (Fischer and Prusa, 1999)
- The empirical evidence is that antidumping duties are extremely costly to consumers (Blonigen and Prusa, ; Galloway, Blonigen and Flynn,) and distort trade flows (Bown and Crowley, 2005).

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The use of WTO-authorized trade sanctions to achieve environmental goals (I)

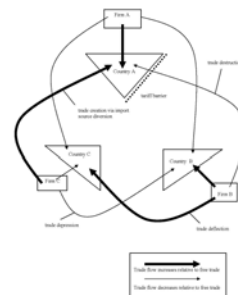
- Safeguards to facilitate adoption of clean technologies
 - Economic theory suggests this could work, but, in practice, they are never successful.
 - Domestic policies (subsidies, regulations) are less distortionary and likely to be more effective.
- Safeguards vs. domestic environmental policy
 - Bagwell and Staiger (JEP 2001) argue that coordination over domestic environmental policies is not needed if countries can impose safeguard tariffs.
 - Ederington (AER 2001) argues that, when enforcement power is limited, governments should coordinate domestic environmental policies and adjust trade policies as necessary to support the agreement.

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The use of WTO-authorized trade sanctions to achieve environmental goals (II)

Antidumping duties for eco-dumping?

- Pros
 - Theoretically, it reduces imports from polluters and increases imports from non-polluters.
- Cons
 - But, polluters may simply deflect dirty exports to other markets.
 - Implementation would be **extremely** difficult.



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Conclusions

- Freer trade is almost certainly affecting the environment, although precisely how is not yet clear.
- The use of trade sanctions to achieve environmental objectives is theoretically appealing in many cases.
- But, the history of special trade protections under the WTO suggests that the costs will likely outweigh any benefits.

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The WTO and the environment

- What's in the agreement now?
 - No specific environmental agreement.
 - Restricts governments from using trade sanctions on the basis of production and process methods (PPMs) in most instances.
 - But allows for some sanctions against polluters (the Shrimp-Turtle case).
 - Allowance for government subsidization of firm adjustment to new environmental regulations from 1995-2000.
- Competing ideas about the WTO's role
 - Trade sanctions are second-best ()
 - The WTO is too restrictive ()

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