"Strategic Subsidies for Green Goods" Carolyn Fischer

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Content

International trade
Relevant markets: Green goods (like renewable energy)
Production and consumption subsidies

The author considers the international market for a new environmental good (e.g. an alternative renewable energy technology) where consumption may provide external benefits (like reduced emissions).
The strategic trade literature has devoted few attention to the range of market failures related to green goods.

The author examines the national incentives and global rationales for offering production and consumption subsidies in producer countries, allowing that some of the market may lie in non-regulating third-party countries.

Questions

- Does the multilateral trade regime need to reconsider its approach on subsidies for green goods?
In some cases, the subsidies are becoming substantial and distorting enough to raise trade concerns.

- Should we reconsider interventions for green goods to address market failures (for example in the provision of renewable energy technologies)?

Framework (1/2)

A more complex approach than previous theoritical studies, allowing multiple regions and firms, multiple production failures (imperfect competition, diseconomies of scale or spillover effects), and different consumption externalities (environmental externalities like reduction of fossil energy consumption).

The model:
Three regions: a domestic producing and consuming region (1), a foreign producing and consuming region (2), and a third-party consuming region (3).
Markets are decentralized and the products are assumed to be identical.
The author considers a Nash equilibrium, in which each producing region chooses optimal subsidies, given the choice of the other producing region (production and consumption subsidies) à la Brander and Spencer (1983).

Framework (2/2)

Key ingredients:
- Underprovision of production subsidies (because of the third market),
- Potential external benefits (proportional to consumption product; for example, renewable energy use can displace emissions from fossil energy).

Three scenarios are studied:
- Imperfect competition,
- Competitive production markets (diseconomies of scale) with and without consumption externalities,
- External scale economies (spillover effects).

Different scenarios

- *Imperfect competition*
  Key ingredient: Cournot competition. Focus is done on production and consumption subsidies.
- *Competitive production markets and consumption externalities*
  Key ingredients: representative producer in each producing country is price taker and increasing marginal cost; analysis with and without environmental benefits.
- *External scale economies (such as through learning-by-doing, supply chain effects, ...)*
  Key ingredient: spillover effects (concavity of the representative producer profit?)

Some conclusions:
Importance of production subsidies in these scenarios (by contrast to World Trade Organization (WTO) rules that tend to restraint these subsidies).
Note both production and consumption subsidies may contribute to lowering global prices in case of scale economies in production.

Numerical application to renewable energy

The author represents producer-consumer regions of Europe, the US, and China, as well as consumption in the rest of the world (ROW).

Key ingredients: perfect competition and a focus is done on consumption externalities.
An effort could be done on having data related to cost functions.

Discussion

- Prefer production and consumption subsidies instead of upstream and downstream.
- The focus could be done on the third scenario,
  as numerical application assumes perfect competition (instead of imperfect competition), and external scale of economies seem to be more prevalent than increasing marginal costs in these markets.