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This IATRC Policy Brief summarizes outcomes of the Annual Meeting Theme Day presentations, held December 12-14, 2021, in San Diego, CA and via virtual platform.

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Trade and Environment Policies: Synergies and Rivalries

Introduction

The International Agricultural Trade Research Consortium (IATRC) is an international association of agricultural researchers and policy practitioners. The objective of the Consortium is to enhance the quality of agricultural trade research by encouraging collaboration among international researchers to improve public understanding of international trade and trade policy issues through various activities such as its flagship annual conference, organized symposia, and outreach activities.

Each year, the Consortium holds its annual meeting where members including academics, government representatives and business researchers discuss research priorities and plans as well as report on on-going research. Part of this meeting is called Theme Day, which is devoted to a topic such as a policy issue, an area of research, or a research methodology. The focus is on innovative trade analysis and research with potential applications for agriculture. The Theme Day also helps to facilitate the exchange of ideas and foster collaboration.

This year, the Theme Day discussions focused on the latest research and analysis regarding the trade and environmental policies, with three invited keynote speakers. Due to travel restrictions related to the COVID-19 pandemic, the 2021 Annual Meeting was conducted as a hybrid meeting. The three presentations have shed light on theoretical, empirical and policy relevant aspects on the trade and environment debate.

The Annual Meeting program and presentations are available at:
<https://iatrc.umn.edu/2021-iatrc-annual-meeting/>

Session 1: The Economic Geography of Global Warming

Esteban Rossi-Hansburg (University of Chicago)

Impacts of Global Warming on the Economy

Global warming is a worldwide and protracted phenomenon with heterogeneous local economic effects. In order to evaluate the aggregate and local economic consequences of higher temperatures, it has been proposed a dynamic economic assessment model of the world economy with high spatial resolution. The model features a number of mechanisms through which individuals can adapt to global warming, including costly trade and migration, and local technological innovations and natality rates.

The 2021 Theme Day featured the following speakers:

Esteban Rossi—Hansberg
University of Chicago

Joseph Shapiro
University of California Berkeley

Bernard Hoekman
European University Institute

Modelling global changes

The model has a $1^\circ \times 1^\circ$ resolution (higher as compared to other existing studies) and estimate the damage functions that determine the impact of temperature changes on a region's fundamental productivity and amenities depending on local temperatures.

Results of the empirical analysis

The baseline results show welfare losses as large as 15% in parts of Africa and Latin America but also high heterogeneity across locations, with northern regions in Siberia, Canada, and Alaska experiencing gains. In particular, the results suggest large uncertainty about average welfare effects and point to migration and, to a lesser extent, innovation as important adaptation mechanisms. The model has been adopted to assess the impact of carbon taxes, abatement technologies, and clean energy subsidies, and conclude that carbon taxes delay consumption of fossil fuels and help flatten the temperature curve but are much more effective when an abatement technology is forthcoming.

The three important takeaways are that: 1) evaluating the cost of global warming is important to prioritize policy reforms; 2) climate change generates heterogeneous effects across space that may be mitigated through adaptation, is switching costs are maintained relatively low and non-prohibitive, especially in the poorest regions; 3) carbon taxes delay the problem, but cannot eliminate carbon use, and it is therefore advisable to couple the taxes with investments in abatement and with carbon substitution technologies.

Session 2: Institutions, Comparative Advantage, and the Environment

Joseph Shapiro (University of California, Berkeley)

The link between Environmental outcomes, Trade and Institutions

Why are poor countries polluted? Is there a connection with the type and the quality of institutions?

Preliminary evidence suggest that financial, judicial, and labor market institutions provide a source of comparative advantage in clean industries, whereas this does not hold for dirtier industries.

Disentangling the role of institutions

The analysis relies on five empirical analyses to demonstrate. First, a simple regression analysis is used to show that ambient pollution and pollution are correlated. Second, it is shown that industries intensive in institutions are clean, adding interaction terms. Third, by including information on countries' endowments in institutions and industry intensities in institutions the analysis found that countries with strong institutions produce (and export) more in clean industries. Fourth, a gravity approach, and the decomposition in scale, composition and technique effects are adopted to explain international pollution differences. Fifth, the approach plans to add a model with counterfactual institutions.

Results of the empirical analysis

The analysis suggests that weak institutions seem to make countries poor and polluted. In addition, it has been shown that clean industries disproportionately rely on inputs that require credit, labor market flexibility, and complex contracts. Countries and states with stronger institutions concentrate economic activity in clean industries, even conditional on environmental regulation and endowments of water, energy, and other sources of comparative advantage. Moving a region from the 10th to the 90th percentile of institutional quality would decrease its industrial pollution by nearly half. Institutions have similar or greater importance than environmental regulation or factor endowments in explaining patterns of industrial pollution.

Session 3: Trade and Climate Change Policies: Multilateral Rules and Plurilateral Cooperation

Bernard Hoekman (European University Institute)

Trade, Policy and the Environment

Empirical evidence have shown that trade (and trade policy) influences environment and climate change outcomes. On the other hand, the environmental policy influences trade outcomes. These two-ways relationships call for a deeper understanding on the role that the trade policy may have, by mean of the (many) available instruments: unilateral and non-cooperative, cooperative and multilateral, or plurilateral and preferential trade agreements, as well as sectoral or issue-specific cooperative agreements.

Existing evidence on the role of trade policy

The unilateral environmental policies are increasing steadily (e.g. Carbon Border Adjustment Mechanism; Emission Trading Scheme) and regulations (non-market measures) are prevalent, but their effects on trade are ambiguous and heterogeneous across sectors. As for tariffs, the extant trade regime is biased against cleaner industries, and the raising of harmful subsidies complicates the global picture. Future research should investigate to what extent environmental policies are offset by trade policies, to guide international trade cooperation toward a new pro-environment trade regime, encompassing subsidies and technical regulations.

Environmental norms in Trade agreements

The environmental norms are introduced more and more in trade agreements. An emblematic case is the EU which includes non-trade provisions in trade agreements. Empirical studies are casting doubt on the effectiveness of the provisions, possibly due to a scarce enforcement mechanism. However, the results are not generalizable, as there are (positive and negative) country-specific effects deserving more attention.

The path toward a new pro-environment trade policy regime

Cooperation seems to be need to regulate market access through penalty default ad non-discriminatory plurilateral agreements. The presumption that cooperation should be mediated by climate/carbon clubs is due to administrative costs/ simplicity and political economy considerations, to the threats of leakage, and the fear of protectionist measures. Against this background, it is important to assess the role of extant policy instruments: regulatory standards, subsidies, carbon pricing, trade policy.

A solution seem to be moving from unilateralism to a plurilateral work program, designing non-discriminatory open plurilateral agreements (OPAs). The ambition is to plan OPAs that are voluntary, open ex post and ex ante, with provisions to assist developing countries, and transparent. Two solutions seem feasible. The first requires the removal of restrictive trade policies on green products. The second consists in implementing arrangements to complement domestic environmental regulations: the solution seems feasible by establishing sector-by-sector regulatory cooperation and supporting relevant epistemic communities.

Conclusions

Global warming, and the consequent changes in climate, are impacting the global agri-food sector in several ways and the economic activities connected to it. The connections between trade and climate change have been investigate during the past decades, and it is widely recognized that the interconnections are multiple. The policy regime, and in particular the extant set of trade and environmental policy is (and will) shape trade and environment outcome.

The Theme Day has focused the attention on theoretical, empirical and policy aspects. The effects of global warming are large, and very heterogeneous across the globe, and across sectors, with the agriculture being interested at different latitudes. These impacts are expected to alter countries specialization and to facilitate migrations, with important impacts in terms of sustainability and equity. The drivers of pollution, and other (undesired) environmental outcomes need to be investigated. Besides factor endowments and regulations, institutions play a pivotal role. Strong empirical evidence is suggesting that weak institutions tend to promote dirtier industries, and trade exacerbates this pattern.

The public good nature of climate change class for an international solution, as emphasized by the last presenter of the Theme day. A new trade regime should be realized, in order depart from protectionist measures or (environmentally) ineffective trade measures, and coordinate trade relationships with a more open approach, based sector-specific plurilateral negotiations coupled with supports to the communities and interests groups.

Research and analyses need to be supported, to inform policymakers who are the front-line in the process to building new societal rules capable of inverting the climate change and develop an efficient, sustainable, and fair global economy. Several questions need to be answered and calls for future investigation:

- How trade may help adapting the global value chain to the changing climate?
- How trade policies can help lowering the pressure of economic activities (i.e. agriculture) on the environment?
- Which role need to be played by national and transboundary institutions?
- To what extent international cooperation can be facilitated, and be effective in promoting green policy at national and international level?