

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

Keynote session:

Speaker: Ngo Van Long, McGill University, Canada
Title: Optimal Tariffs on Exhaustible Resources in the Presence of Cartel Behavior

Abstract

This paper presents a model of bilateral monopoly between a coalition of resource-importing countries and a coalition of resource-exporting countries. We show that there exists a threshold level of the marginal extraction cost parameter beyond which the resource-importing coalition would prefer bilateral monopoly to world-wide free trade. The higher is the rate of discount, the greater is the corresponding threshold marginal cost level. In the case of two non-collusive asymmetric importing countries, we show that asymmetry of market sizes also plays a role in determining the welfare gains under free trade or tariff war. As the two importing countries become more asymmetric in terms of their relative size, their gains from trade are more likely to be higher under tariff war than under free trade. In the final section, we investigate the scenario where the exporting country commits on a division of resource deposits to serve to two importing countries separately. We find that its optimal division corresponds to the one that divides up the resource deposit according to the two countries' market sizes. Interestingly, the exporting country is worse off in this case compared to the case where it has no option to divide up the resource and is required to supply the two importing countries from a common pool.

by
Ngo Van Long, *McGill University, Canada*, and
Stephen Jui-Hsien Chou, *National Tsing Hua University, Taiwan*

2.
Speaker: Kenji Kondoh, Chukyo University, Japan
Title: Pollution Abatement Equipment and International Migration

Abstract

We introduced the environmental industry, which supplies pollution abatement equipment into the Copeland and Taylor (1999) model. Doing this we found that the real wage rate will be higher in a developed country with a higher productivity in the production of pollution abatement equipment or with a superior pollution abatement technology. On the other hand, the effects on the real wage rate caused by environmental tax policies would not clear. Following permission for international migration, we could assert that in at least one of the two countries -- the host and source countries -- migration will cause positive effects on the wage rate, stock of environment, and economic welfare of the representative worker. Moreover, under a certain simple condition, we showed that both countries will be able to gain from international migration.

By
Kenji Kondoh, Chukyo University, Japan

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

3.

Speaker: Pasquale M. Sgro, Deakin University, Australia
Title: Environmental Control, Wage Inequality and National Welfare for a Tourism Economy

Abstract

This paper examines the effects of environmental control on income distribution and welfare for an open economy with inbound tourism. The pollution input is considered as a mobile factor between sectors, and a rise in it raises the wages of skilled labor in the traded sector but can weaken the wages of unskilled labor in the non-traded sector. Thus, lax policy on environmental controls can be a source of rising wage inequality between skilled and unskilled labor. In addition, loosened environmental control lowers the price of the non-traded good and thus reduces the revenue from tourism exports. Stricter controls on pollution emissions can therefore narrow the wage gap and promote residents' welfare. Nonetheless, to improve the production efficiency of the non-traded good sector, permit prices of emissions may need to be lower under imperfect competition.

By

Jean-Pierre Laffargue, University of Paris I
Chi-Chur Chao, Chinese University of Hong Kong and
Pasquale M. Sgro, Deakin University, Australia

4.

Speaker: Francesca Sanna-Randaccio, University of Rome
Title: Foreign direct investment and environmental policy: Have location factors been neglected?

Abstract

This paper analyses the effect of asymmetric environmental policies on the international strategies of firms, when countries differ in terms of market size and barriers to trade and FDI have been removed. It contributes to the debates on the Pollution Haven Hypothesis and on the risk of "carbon leakage" in the EU. A simple model with endogenous plant location is presented, considering both a symmetric and an asymmetric scenario. It is shown that, if countries have the same size and there are no other sources of asymmetry, a more stringent pollution tax unilaterally adopted will always lead to some form of delocalisation. However, in an asymmetric context, if the more stringent environmental policy is introduced by the larger country, and unit transport cost is high with respect to the pollution tax, it is possible that the firm's location choice will not change. The model suggests that environmental taxes should be industry-specific, accounting for the geographical mobility of the industry. In addition, the analysis implies that environmental rules should not be uniform worldwide, but should take account of differences in countries' market size and thus ability to attract production.

By

Francesca Sanna-Randaccio and Roberta Sestini, University of Rome

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

5.

Speaker: Xue Qiao, Tsinghua University, China
Title: Dynamic Inefficiency, Environmental Tax and Climate Change – An Overlapping Generation Model Analysis

Abstract

We study an overlapping generation model to analyze the implicit dynamic inefficiency issues rooted in the climate change problem. Using a benchmark OLG model, we have shown that if rational agents consider the negative impact of future likely low-probability high-impact climate catastrophes, and they have very limited confidence in terms of averting the climate trend, they will increase their consumption while young, and save less for the future while old, thus reinforcing the negative impacts of climate change by accelerating the accumulation of GHG emissions. In this paper, we propose a simple environmental tax policy by linking the tax revenue with climate abatement activities. Our analytical results show that at appropriate tax rate range, an enforced climate tax policy is possible to smooth the consumption trajectory, and correct this type of dynamic inefficiencies originated from the decentralized individual rational but collectively irrational behaviors. Therefore, our study can shed some light on the importance for the global community to work out a consensus on climate actions to deal with the intra- and inter-generational externalities and inefficiencies.

By

Jing Cao and Xue Qiao, Tsinghua University, China

6.

Speaker: Daniela Marconi, Bank of Italy
Title: Trade, technical progress and the environment: the role of a unilateral green tax on consumption

Abstract

The paper proposes a two-country general equilibrium model of endogenous growth and trade between countries with different environmental standards. Each country, North and South, produce a diversified set of consumption goods which produce pollution externalities according to their pollution intensity. Technological progress is endogenous, resulting from R&D investment aimed at reducing both production costs and pollution. In order to abate pollution without affecting firms' competitiveness the Northern region imposes unilaterally a green tax on consumption. As the tax on consumption acts as if the marginal cost of producing diversified goods is higher for both countries, we show how through trade linkages such a unilateral action affects the incentives to shift labor towards the R&D sector in both countries. The model shows that, under the assumption of balanced trade, a unilateral tax on consumption in the North can increase the speed of pollution abatement in both countries. Such an outcome does not require to assume technology diffusion as it relies on the fact that a tax on consumption reduces the demand for polluting goods no matter where they are produced and affects profits and terms of trade.

by

Daniela Marconi, Bank of Italy

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

7.

Speaker: Kenji Fujiwara, Kwansei Gakuin University, Japan
Title: A differential game model of Pareto inferior trade

Abstract

We prove Pareto inferior trade in a differential game model of renewable resource duopoly. It is shown that welfare in trade is below welfare in autarky for any tariff levels. This result contrasts to the static result that trade liberalization can improve welfare relative to autarky if reduction in tariffs is sufficient. We discuss that the closed-loop property of feedback strategies plays a decisive role behind our result.

By

Kenji Fujiwara, Kwansei Gakuin University, Japan

8.

Speaker: Yen-Hsiang Huang, National Taiwan Sport University
Title: Estimating Congestion Cost and Segmenting Motivation for the Satisfaction of Taiwan Coffee Festival

Abstract

Tourists usually have different level of motivation and satisfaction to participate in recreation event and resulting for different willingness to pay of congestion improvement. Multivariate statistical method such as factor analysis and cluster analysis will be used to analyze the leisure motivation of the tourists for segmentation in this study. Meanwhile, double-bounded dichotomous choice contingent valuation method (CVM) will be adopted to estimate the congestion cost of the tourists and using survival analysis based on the hypothetical scenarios of congestion improvement in recreation event. The result of congestion cost estimation in this study has found that the average willingness-to-pay (WTP) for each tourist is 2.22 US dollars on improving traffic jamming and parking, etc. Furthermore, this research has a significant level for testing the scope effect from different areas respondents, which shows that this study has description on the environmental resources condition clearly and therefore, reliable policy message can be transferred from CVM.

By

Chin-Huang Huang and Yen-Hsiang Huang, National Taiwan Sport University

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

9.

Speaker: Victoria I. Umanskaya, University of California-Riverside, USA
Title: Trade, Transboundary Stock Pollution, and Strategic Abatement

Abstract

We use an asymmetric dynamic model of transboundary pollution and trade and compare outcomes of two second-best scenarios: 1) The country adversely affected by pollution, Downstream, uses a tariff policy to control for the externality, while the polluting country, Upstream, is myopic; 2) Upstream engages in strategic abatement activity to influence the level of tariff. We show that the presence of the asymmetric externality is likely to encourage strategic behavior by both players: Downstream will find it optimal to unilaterally impose a sequence of tariffs determined by the current state of pollution. And if such tariffs are imposed, Upstream will unambiguously benefit from engaging in strategic abatement activity that reduces the pollution accumulation rate and gives rise to a lower level of the tariff in the long-run. Therefore, feedback strategies may suggest a mechanism that supports a self-enforcing trade and environmental agreement.

By

Victoria I. Umanskaya, University of California-Riverside, USA
Charles F. Mason, University of Wyoming, USA, and
Edward B. Barbier, University of Wyoming, USA

10.

Speaker: Norimichi Matsueda, Kwansai Gakuin University, Japan
Title: Effects of transboundary stock pollution on the mode of international competition

Abstract

This paper looks into potential determinants of the mode of international competition in a polluting good market by focusing on a strategic interaction between two environmentally concerned governments. From the analysis of our model based on a simple international duopoly model with transboundary stock pollution, we show how the resulting form of international competition depends on the magnitudes of the transboundary impacts of pollutant emissions and the decay rates of pollutant stocks in respective countries.

By

Kenji Fujiwara and Norimichi Matsueda, Kwansai Gakuin University, Japan

**The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts**

11.

Speaker: Baomin Dong, University of International Business And Economics, China
Title: International Environmental Agreement Formation and Trade

Abstract

This paper examines how International Environmental Agreements (IEAs) will be affected when countries change from closed economy to open economy. Using an extended model from Barrett (1994)'s seminal paper on self-enforcing IEA, this paper shows that: (i) instead of free trade, tariff trade will arise in equilibrium; (ii) the endogenously determined size and the effectiveness of the IEA are the tradeoff of four effects, namely entry effect, level effect, leakage effect and tariff effect. The paper also offers an alternative explanation for the minimum participation clause adopted by most IEAs, i.e., signatories of an IEA have incentive to make higher abatement than nonsignatories (determined by domestic environmental policy) only if the size of the agreement reaches a minimum level.

By

Baomin Dong and Xin Zhao, University of International Business And Economics, China

12.

Speaker: Daniel E. May, University of Wolverhampton, UK

Title: The Effects of Environmental Considerations on the International Trade System: an International Social Network Analysis

Abstract

The paper uses the new advances of the International Trade Network literature to analyze the relationship between international trade and the environment in a global context. This framework shows that bilateral agreements can either increase or decrease local pollution depending on the current trade network structure, and that the environment is always benefitted when there is some degree of international trade integration. The article also shows that the stability of the international trade system is strongly affected when environmental considerations are included in the welfare function.

By

Daniel E. May, University of Wolverhampton, UK

The 2009 APJAE Symposium on Trade, Environment and Resources
Abstracts

13.

Speaker: Thi Anh-Dao Tran, University of Rouen and University of Paris 13, France
Title: International environmental issues in the age of globalization: North versus South?

Abstract

Our paper attempts to discuss the management of global pollution issues by introducing the environmental debate in a two-region model of economic geography. We first show that unilateral environmental policy adopted by the North drives the industrial firms out of the region and lowers real income. However, the ecological dumping argument has only found partial evidence as the Northern larger market still attracts firms. In addition, the total effect on environment appears ambiguous: globalization can make pollution even worse. These outcomes provide arguments for international cooperation. However, although better from an ecological point of view, this option hurts specifically the South both in terms of spatial distribution of industry and real income.

By

Arsène Rieber, University of Rouen, France, and
Thi Anh-Dao Tran, University of Rouen and University of Paris 13, France

14.

Speaker: Norihiko Yamano, OECD
Title: TOWARDS HARMONISED BILATERAL TRADE DATA FOR INTER-COUNTRY INPUT-OUTPUT ANALYSES: STATISTICAL ISSUES

Abstract

Understanding the increasingly complex structures of international trade is an important concern for policy makers as deepening economic integration is characterised by the growing trade in intermediate goods and services between countries. Analyses based on international input-output tables can help address trade-related policy issues as well as providing other insights into the socio-economic and environmental impacts of globalisation. To link national input-output tables in order to carry out interdependent analyses across countries requires a consistent set of harmonised international bilateral trade data that ideally reflects recent output by the economic activities in question. This paper discusses the challenges faced when attempting to construct appropriate bilateral trade matrices using annual data collected by the OECD and United Nations, as well as national sources. While the main focus is on the increasing presence of “re-exports” in reported exports of goods data, this paper also addresses some other statistical and data issues that need to be considered, such as treatment of confidential (or “unallocated”) trade in goods; trade in second-hand goods, scrap metal and other waste; differences in trade statistics across international statistical agencies; and the additional problems encountered when converting product-based trade data to industry-based classifications. Issues concerning Balance of Payments data, the main source for trade in services, are also addressed.

By

Dong Guo, Colin Webb and Norihiko Yamano