Kyushu-Illinois Strategic Partnership Colloquia Series #3

Environmental Economics

Date / Time 8:00-10:00 am Wednesday, May 12, 2021 (Japan Standard Time)
6:00-8:00 pm Tuesday, May 11, 2021 (U.S. Central Daylight Time)

The goal of this symposium is to build research collaborations between the Center of Economics of Sustainability, University of Illinois Urbana-Champaign and the Urban Institute, Kyushu University in the area of environmental economics. The symposium will include short presentations on research topics being studied by faculty in the two institutions and be followed by discussion of areas of mutual interest and opportunities for joint work.

Co-Moderators:

- **Madhu Khanna**, ACES Distinguished Professor in Environmental Economics, Interim Director, Institute for Sustainability, Energy and Environment and Co-Director, Center for Economics of Sustainability, Illinois
- **Shunsuke Managi**, Distinguished Professor of Technology and Policy, Director, Urban Institute, Kyushu

JST	CDT	PROGRAM	SPEAKER
8:00-8:05 AM	6:00-6:05 pm	Opening Remarks	**Susan Martinis**, Vice Chancellor for Research and Innovation, Stephen G. Sligar Professor of Molecular and Cellular Biology, Illinois
8:05-8:10 AM	6:06-6:10 pm		**Toshiyuki Kono**, Executive Vice President for International Affairs, Professor of Law, Kyushu
8:10-8:20 AM	6:10-6:20 pm	Lecture #1	**Sunbin Yoo**, Assistant Professor, Urban Institute, School of Engineering, Kyushu
8:20-8:30AM	6:20-6:30pm	Lecture #2	**Peter Christensen**, Assistant Professor, Department of Agricultural and Consumer Economics, Illinois
8:30-8:40AM	6:30-6:40pm	Lecture #3	**Alexander Ryota Keeley**, Assistant Professor, Technology and Policy Department of Urban and Environmental Engineering, Kyushu
8:40-8:50AM	6:40-6:50pm	Lecture #4	**Hope Michelson**, Associate Professor, Department of Agricultural and Consumer Economics, Illinois
8:50- 9:05AM	6:50-7:05 pm	Q&A	
9:05-9:15AM	7:05-7:15pm	Lecture #5	**Hidemichi Fujii**, Associate professor, Faculty of Economics, Kyushu
9:15-9:25AM	7:15-7:25pm	Lecture #6	**Madhu Khanna**, ACES Distinguished Professor in Environmental Economics, Interim Director, Institute for Sustainability, Energy and Environment, Co-Director, Center for Economics of Sustainability, Illinois
9:25-9:35AM	7:25-7:35pm	Lecture #7	**Shunsuke Managi**, Distinguished Professor of Technology and Policy, Director, Urban Institute, Kyushu
9:35-9:45AM	7:35-7:45pm	Lecture #8	**Amy Ando**, Professor, Department of Agricultural and Consumer Economics, Illinois
9:45-9:55AM	7:45-7:55pm	Q&A	
9:55-10:00AM	7:55-8:00pm	Closing Remarks	**Reitumetse Obakeng Mabokela**, Vice Provost for International Affairs and Global Strategies, Professor of Higher Education, Illinois

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Kyushu-Illinois Strategic Partnership Colloquia Series #3 Abstracts

Environmental Economics

Abstracts

Lecture #1

"Emission simulations in transportation sector using structural estimation"

Sunbin Yoo, Assistant Professor, Urban Institute, School of Engineering, Kyushu

Which comes first in reducing the Carbon Dioxide (CO2) emissions from the transportation sector: Policy, consumer preference or technological advancement? Using a series of discrete-choice demand models, we estimate the demand for automobiles in Japan and Korea. For Japan, our model explicitly allows consumer preferences for fuel economy to evolve over time, and the estimation results confirm the existence of such a change. On the other hand, our analyses reveal that Korean consumers have become more sensitive toward fuel costs over time. We then simulate consumer behavior, replacing consumer preferences across those who are environmentally cautious to those who are not environmentally cautious. The results imply that in Japan, both consumer preferences and technological advancement are important--without technological advancement and increases in consumers' appreciation for fuel-efficient cars, CO2 emissions cannot be reduced. On the other hand, in Korea, the emission consequences of Korean policies depend on consumer preferences.

Lecture #2

"How Economists can Use Ride-hailing Markets to Inform Optimal Transport Policy"

Peter Christensen, Assistant Professor, Department of Agricultural and Consumer Economics, Illinois

The transportation sector is a primary driver of pollution in cities and global greenhouse gas emissions. While 2 billion people will move into developing world cities by 2050, their emissions trajectories will largely depend on whether travel patterns crystalize around private versus shared transportation. New app-based transport platforms provide high-quality, reliable and convenient transport services that began with taxi-like services (Uber, Lyft, DiDi) and are now evolving into shared services targeting emerging markets (Uber Bus, Swvl, Plentywaka). I will discuss the opportunities that these platforms provide for new approaches to experimental research on the demand for urban mobility. Comprehensive approaches to transport demand are critical for designing optimal transportation policy, but have been challenging when demand elasticities interact across public/private modes and vary across the population. I will discuss these issues in the context of recent work in Cairo, Egypt as well as future experiments that will address urban mobility challenges in other cities.

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Environmental Economics

Lecture #3

"Renewable Energy and Energy Market: Supply Impact and Demand Change"

Alexander Ryota Keeley, Assistant Professor, Technology and Policy Department of Urban and Environmental Engineering, Kyushu

Rising renewable shares influence energy markets in several ways: among others, the impact on the wholesale electricity market price, and the changing preferences toward renewable energy technologies, are covered in this talk. First, focusing on the wholesale electricity market price, through combining regression analysis with machine learning analysis to study the merit order effect of renewable energy, the analysis results show that electricity from wind and solar PV sources reduced the spot market price by 9.64 €/MWh on average during the period from 2010 to 2017 in Germany. The results also shed lights on the characteristics of the interactions between renewable energy and spot market prices, including the slightly diminishing merit order effect of renewable energy at high generation volumes. Second, through investigating the citizens' willingness to pay for renewable energy technologies, and analyzing the factors influencing their preferences by integrating spatial information, the results show that besides respondents' ages, sex, education levels, and household incomes, their proximity to existing power plants generating renewable and non-renewable energy and natural capital endowments in their locations significantly affected their WTP for renewable energy technologies.

Lecture #4

"Low Fertilizer in Sub-Saharan Africa: New Insights Into an Old Problem"

Hope Michelson, Associate Professor, Department of Agricultural and Consumer Economics, Illinois

Fertilizer use remains below recommended rates in most of Sub-Saharan Africa, contributing to low agricultural productivity, pervasive poverty, and food insecurity. Low fertilizer use is a persistent problem for policymakers and small farmers, and it has received considerable attention from development economists. Factors contributing to low adoption of fertilizer include uninsured production and output market risk, financial constraints, heterogeneity in returns, and behavioral factors. This talk reviews evidence from four recent studies providing new insights on this important topic related to difficulty of learning and attribution in rain-fed systems.

Lecture #5

"Toxic chemical substances management using TRI data"

Hidemichi Fujii, Associate professor, Faculty of Economics, Kyushu

Toxic chemical management is vital to environmental protection and economic development in industrialized countries because it reduces the abatement costs associated with the use of toxic chemicals and minimizes the risk of accidental pollution. However, aspects related to toxic chemical emissions that are generated by the product supply chains that connect consumers to producers have not been widely studied. This talk introduces integrated decomposition analysis framework to clarify the main drivers of changes in the toxicity of production- and consumption-based chemical emissions. The results showed that toxic emissions from the US industrial sector decreased by 83% over the studied period because of pollution abatement efforts adopted by US industries. A variety of pollution abatement efforts were used by different industries, and cleaner production in the mining sector and the use of alternative materials in the manufacture of transportation equipment represented the most important efforts.

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Lecture #6

"Non-Regulatory Approaches to Environmental Protection: Effectiveness and Unintended Consequences"

Madhu Khanna, ACES Distinguished Professor in Environmental Economics, Interim Director, Institute for Sustainability, Energy and Environment, Co-Director, Center for Economics of Sustainability, Illinois

Non-regulatory approaches relying on voluntary programs and environmental information disclosure are being relied on globally to induce firms to become socially responsible. The effectiveness of these approaches in inducing voluntary efforts by firms to make substantive changes in their performance has been mixed. Information disclosure programs to empower community action against polluting firms have created incentives for some firms to reduce their pollution and for others to relocate operations, but their impact has been uneven, with the potential for exacerbating environmental injustice. This talk will discuss findings from recent studies on the drivers for firms to be socially responsible, the effectiveness of existing programs in achieving social goals of environmental protection and their potential for unintended consequences for environmental justice.

Lecture #7

"Inclusive Wealth: Measurement for Sustainability"

Shunsuke Managi, Distinguished Professor of Technology and Policy, Director, Urban Institute, Kyushu

The Inclusive Wealth Index provides important insights into long-term economic growth and human well-being. The Index measures the wealth of nations through a comprehensive analysis of a country's productive base and the country's wealth in terms of progress, well-being and long-term sustainability. It measures all assets which human well-being is based upon, in particular, produced, human and natural capital to create and maintain human well-being over time. We expanded the study significantly, to cover 140 countries. It provides valuable insights into investment strategies of countries on nature and education and potential returns from future investments, and demonstrates the use of the Inclusive Wealth Index as a key indicator for sustainable, stronger, and more peaceful development.

Lecture #8

"Heterogeneous values of nature and ecosystem services"

Amy Ando, Professor, Department of Agricultural and Consumer Economics, Illinois

Abstract: Nonmarket valuation of elements of nature, ecosystem services, and policies themselves provides vital information for resource management decisions and benefit-cost analysis of environmental policies. The valuation literature is large, but important advances still need to be made. This talk shows findings from several recent and ongoing valuation studies – valuing grassland habitat restoration, urban beaches, and the option to rebuild in place after your home is destroyed in a natural disaster. The talk highlights how estimating the factors that drive preference heterogeneity can inform policy and management, and ends with sample ideas for future work.

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