Beijing Humboldt Forum 2019

Session organized by the ZEW – Leibniz Centre for European Economic Research

CLIMATE CHANGE MITIGATION, AIR POLLUTION CONTROL AND THE MOBILITY SECTOR

Venue: University of International Business and Economics (UIBE), International Plaza A, Room 203.
Sunday, September 22, 2019, 09:00 – 15:15

Description of the Session:

In the ZEW session on "Climate Change Mitigation, Air Pollution Control, and the Mobility Sector," scientists from China, Germany, and the USA will present ongoing research projects dealing with economic issues related to emissions caused by the mobility sector at the local, regional, and international level, examining both supply-side developments in electromobility and demand-side behavioural responses to various incentives to reduce emissions. The session will also focus on analyses of the efficacy of various policy measures for reducing urban air pollution.

International Chair:
Andreas LÖSCHEL, University of Münster and ZEW, Germany and UIBE, China

Current positions:

- since 2014 Professor of Economics (W3), esp. Energy & Resource Economics and Director of the Centre of Applied Economic Research Münster (CAWM), University of Münster
- since 2011 Chairman of the Energy Expert Commission of the German Government to Monitor the Energy Transformation since 07/2017 Head of the Virtual Institute Smart Energy North Rhine-Westphalia
- ZEW Research Associate since 2014

Research interests:
Energy economics and policy, climate change economics, international environmental agreements, behavioural economics, computable general equilibrium modelling

Academic impact:

- Google Scholar: 5419 citations, h-Index = 38 (1.9.2019)
- Scopus: 85 papers, 1858 citations, h-Index = 24 (1.9.2019)
- Web of Science: 66 papers, 1535 citations, h-Index = 22 (1.9.2019)

Awards and honours:

- Since 2016 Elected Member of the **National Academy of Science and Engineering** (acatech)
- 2013, 2014, 2017 Among the 50 most influential economists in Germany in the Ranking of Economists of the Frankfurter Allgemeine Zeitung (F.A.Z.)
- 2017 Handelsblatt ranking of German speaking economists Top-100 Economists (current research)

Bodo **STURM**, HTWK Leipzig and ZEW, Germany

Current positions:

- since 2009 Professor of Economics and Quantitative Methods at Leipzig University of Applied Sciences (HTWK Leipzig)
- ZEW Research Associate since 2010

Research interests:
Climate change economics, experimental economics

Academic impact:

- Scopus: 27 papers, 251 citations, h-Index = 9 (2.9.2019)

Domestic Chair:

OU, Xunmin, Tsinghua University, China

- Associate Professor at the Institute of Energy, Environment and Economy, Tsinghua University

Program:

09:00 – 09:15	Welcome	Andreas **LÖSCHEL** (University of Muenster and ZEW) **OU**, Xunmin (Tsinghua University)
09:15 – 10:00	China's electric vehicles development and the effects on CO_2 and air pollution mitigation	**OU**, Xunmin (Tsinghua University)
10:00 – 10:45	Brow(er) sakes after blue skies days? The Unintended Consequences of Short Term Bans on Air Quality in China	Antonio **BENTO** (USC Center for Sustainability Solutions)
10:45 – 11:15	Coffee Break	
11:15 – 12:00	Electric vehicles and everyday mobility demand - Is range anxiety justified? – Evidence from Germany	Martin **KESTERNICH** (ZEW und University of Kassel)
12:00 – 12:45	An econometric approach toward identifying the relationship between vehicular traffic and air quality in Beijing	**QIN** Ping (Renmin University of China)
12:45 – 13:45	Lunch Break	
13:45 – 14:30	Transparency and environmental performance	**ZHANG** Bing (Nanjiing University)
14:30 – 15:15	How important is information disclosure for firms' purchase of carbon offsets?	Carina **FUGGER** (ZEW)

Abstracts:

Brow(er) sakes after blue skies days? The Unintended Consequences of Short Term Bans on Air Quality in China

Antonio **BENTO** (USC Center for Sustainability Solutions)

Abstract:

Despite the efficiency advantages of market-based instruments to control policy, short-term bans – bans that essentially shut down the production of polluting facilities – remain very popular, especially in developing countries. Examples of short-term bans include: bans issued to assure blue skies days during major events in China; bans issued during days of extremely high pollution levels as contingencies programs; and bans on driving, based on plate restrictions.

This paper is the first to examine the economics of bans. Taking advantage of the first major ban in china during the APEC meetings, we examine the effects of the ban on pollution before, during and post ban. The key insight is that the net effect of the ban results in an overall increase in pollution. The paper also examines the mechanisms of adjustments that lead to this result by relying on two unique datasets: the continuous monitoring emissions data and the census of manufacturing.

Electric vehicles and everyday mobility demand - Is range anxiety justified? – Evidence from Germany

Martin **KESTERNICH** (ZEW and University of Kassel)

Abstract:

In Germany sales of electric vehicles (EVs) significantly lag behind envisaged market penetration rates. Range anxiety, which refers to the fear of not being able to travel the desired distance with an EV due to its limited range, is often named as a major barrier to widespread EV adoption. We empirically investigate whether range anxiety is justified for daily distances traveled with an internal combustion engine car (ICE). Actual single-day mileage is observed for a sample of 6,783 private ICEs as well as more than 1,000 ICEs provided by a large stationary car sharing company in Germany. We check whether the observed distances could have been completed with an EV. We find that 82-100% of ICEs users could complete their single-day mileage with an EV, depending on ownership type and EV range assumption.

An econometric approach toward identifying the relationship between vehicular traffic and air quality in Beijing

QIN Ping (Renmin University of China)

Abstract:

Earlier studies that evaluated the impact of vehicular emissions on urban air quality often reached mixed conclusions, thus providing little guidance to city-planners seeking solutions to the ever-growing problem of air pollution. We re-examine this question by using an instrumental variable approach to estimate a causal relationship between traffic congestions and ambient air quality in Beijing. We find that around 38%-58% of ambient air pollution in Beijing can be attributed to vehicular emissions. However, this average figure is masked by non-linearity, suggesting that policy-makers

should focus their efforts on alleviating areas with heaviest congestions in order to improve air quality.

Transparency and environmental performance

ZHANG Bing (Nanjing University)

Abstract:

Using a national-scale, randomized field experiment as a source of exogenous variation in transparency, we evaluate the downstream effects of transparency on regulatory outcomes related to pollution and environmental quality at both the firm level and the air quality monitoring station level. We found that the increase in transparency caused reductions in air pollution. The results provide strong evidence that increased transparency increases the stringency of regulation activities in China and thus close the "implementation gap" that has emerged between central policies and local implementation of those policies. The broader push toward transparency in governance could have far-reaching implications for the governmental provision of services and regulatory quality.

How important is information disclosure for firms' purchase of carbon offsets?

Carina **FUGGER** (ZEW)

This study provides field experimental evidence on the motives of firms to engage in the voluntary provision of an impure public good. Our main research question is whether image concerns matter for participation in a carbon offsetting program in the business-to-business courier service sector. The field experimental setting provides clients of a delivery service provider with the opportunity to offset the carbon emissions resulting from the shipment by paying a price add-on, while we vary the opportunity to signal this offsetting to the recipient of the delivery. From a total of 6,664 deliveries that were purchased between March and September 2018, 10.6 percent were sent carbon neutral. In contrast to social image explanations for the engagement in Corporate Social Responsibility activities, we find that offsets are also purchased if the sender has no direct opportunity to show this signal to the receiver of the delivery. More surprisingly, if the signal is optional, more than half of the offset orders are sent without a signal, meaning that senders voluntarily hide their pro-social behavior.

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Zentrum für Europäische Wirtschaftsforschung GmbH
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Short CVs and contact details:

Andreas **LÖSCHEL** (Andreas.Loeschel@wiwi.uni-muenster.de)

Professor Andreas Loeschel holds a Chair for Energy and Resource Economics and is director of the Center of Applied Economic Research at the University of Münster since 2014. He received his PhD in Economics at the University of Mannheim in 2003. Since 2010 he has been Professor of Economics at the University of Heidelberg and since 2011 he has been the chairman of the Expert Commission of the German Government to monitor the energy transformation. Andreas Loeschel is a Lead Author of the Intergovernmental Panel on Climate Change (IPCC) for the Fifth and Sixth Assessment Report (2010-14, 2017-21). Andreas Loeschel is a member of the German National Academy of Science and Engineering (acatech), a research associate of the ZEW and a Visiting Chair Professor at the University of International Business and Economics (UIBE) in Beijing.

Bodo **Sturm** (bodo.sturm@htwk-leipzig.de)

Bodo Sturm is professor of economics and quantitative methods at the Leipzig University of Applied Science. Bodo Sturm was a research fellow at the Faculty of Economics and Management of the University of Magdeburg (chair of economic policy: Prof. Dr. Joachim Weimann) from 1999 to 2005. In his PhD thesis he examined selected applications of the experimental method in environmental economics. Mr. Sturm was a senior researcher at ZEW between 2005 and 2009. In his research, he analyses design aspects of environmental regulation and incentive problems in international environmental policy. Furthermore, Mr. Sturm is engaged in experimental economics. Prof. Dr. Bodo Sturm is research associate at ZEW. He works in close cooperation with the research unit "Environmental and Resource Economics, Environmental Management".

ZHANG Xiliang (zhang_xl@mail.tsinghua.edu.cn)

Dr. Zhang Xiliang is Professor of Management Science and Engineering and Director of the Institute of Energy, Environment, and Economy, Tsinghua University. Prof. Zhang is also the Director of the MIT - Tsinghua China Energy and Climate Project. His current research interests include low-carbon energy economy transformation, integrated assessment of energy and climate policies, renewable energy and automotive energy. Since 2015 Professor Zhang has been heading the expert group on China's national carbon market design of the Climate Change Department of the Ministry of Ecology and Environment. Prof. Zhang has been a lead author of the 4th and 5th IPCC Climate Change Assessment Report. He is Chair of the Energy Systems Engineering Committee of the China Energy Research Society, and vice president of the China Renewable Energy Industry Association. Prof. Zhang holds a PhD in Systems Engineering from Tsinghua University.

Antonio **BENTO** (abento@usc.edu)

Antonio M Bento is a Professor of Public Policy and Economics at the University of Southern California. He is also the inaugural director of the USC Center for Sustainability Solutions, and a research associate of the NBER and the Schwarzenegger Institute for State and Global Policy.

Professor Bento is a leading environmental and energy economist. Most of his work consists of theoretical and empirical assessments of major public policy issues, and his scholarly interests range widely both in topics and methods. For the past few years, Professor Bento has written on topics related to the design of climate change mitigation policies and the interactions of (new) environmental policies with the broader tax system; the effectiveness of policies that promote the expansion of biofuels, renewable energy, and the diffusion of cleaner technologies; causes and remedies of urban sprawl and urban environmental challenges in developed and developing countries; the benefits of major environmental regulations, such as the Clean Air Act and its Amendments; individual responses to real-time pricing; and the distributional impacts of various environmental policies, including federal gasoline taxes. His work has been published in Science, the *American Economic Review, the American Economic Journal: Economic Policy, the Review of Economics and Statistics, the Journal of Environmental Economics and Management, the Journal of Urban Economics, the Energy Journal* and other scholarly journals and books.

Professor Bento contributed to the New York State Climate Change Action Plan, the New York State Biofuels Roadmap, the U.N. Scientific Committee on Problems of the Environment (SCOPE) Assessment Report on Biofuels, served as a contributing author to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, and as a lead author to the International Panel on Social Progress (IPSP).

Martin **KESTERNICH** (martin.kesternich@zew.de)

Martin Kesternich is deputy head of the ZEW Research Department "Environmental and Resource Economics, Environmental Management" and has been a professor in economics, with a special focus on environmental and resource economics, at the University of Kassel since January 2019. He studied economics at the University of Mannheim and the Pontificia Universidad Católica Argentina in Buenos Aires, before receiving his doctoral degree in economics from the University of Hamburg in 2015. Holding a scholarship by the German Academic Exchange Service (DAAD), Martin Kesternich was a visiting scholar at the Yale School of Forestry & Environmental Studies. His research interests encompass experimental and empirical approaches in the fields of environmental and behavioural economics.

QIN Ping (pingqin@ruc.edu.cn)

Ping Qin received her Ph.D. in Environmental Economics in 2009, at University of Gothenburg, Sweden. She visited Resources for the Future from 2009 to 2010. Now she is an associate professor at Department of Energy Economics of School of Applied Economics, Renmin University of China. Her research interests cover environmental and resource economics, energy economics, experiment and behavior economics. Her papers were published in such journals as JEEM, Land Economics, Resource and Energy Economics, Journal of Economic Behavior & Organization

ZHANG Bing (zhangb@nju.edu.cn)

Zhang Bing is a professor of environmental economics and policy at School of Environment and School of Government at Nanjing University. He is also the director of Center for Environmental Management and Policy Analysis which is supported by Nanjing University and Jiangsu Environmental

Protection Department. He hold a doctorate in Environmental Planning and Management from Nanjing University and Rutgers University. His research focuses on energy and environmental governance and policy system in China. He mainly examine detail regulation design on regulating pollution and GHGs in China, as well as its impacts on industrial competitiveness, structure dynamic and social welfare.

Carina **FUGGER** (carina.fugger@zew.de)

Carina Fugger (formerly Lindener) studied environmental sciences with a focus on environmental economics at the University of Koblenz-Landau. Her diploma thesis, which was conducted in corporation with the United Nations University Institute for Environment and Human Security, Bonn (UNU-EHS), dealt with climate change adaptation strategies in Southern Vietnam. She completed internships at the Wuppertal Institute for Climate, Environment and Energy and at an environmental organisation in the Philippines. Between 2013 and 2016 Carina Fugger worked as a research assistant at the Institute for Economic Policy at the University of Cologne, before joining ZEW as a scientific advisor to the Board in April 2016. As of May 2017 Carina Fugger has been working in the ZEW Research Department “Environmental and Resource Economics, Environmental Management”.