Climate Risk / Change Day

As part of our commitment to the United Nations Sustainable Development Goals, Risk and Insurance Studies Centre is delighted to invite everyone to a virtual workshop that brings together renowned international scholars and influential industry leaders. The workshop aims at generating awareness of climate change risks and mobilizing the community to take action.

March 23, 2023, 1:00 pm - 3:30 pm EST

PRESENTERS

Jennifer Winter
University of Calgary

Marcos Pelenur
The Behavioural Insights Team

Madanmohan Ghosh
Bank of Canada

Andrew Hobbs
University of San Francisco

Please RSVP:

Contact Information
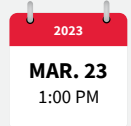**Shamira Davidov**
Research and Academic Grant Coordinator
sdavidov@yorku.ca

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Climate Risk Day

JENNIFER WINTER

Jennifer Winter is an Associate Professor in the Department of Economics and the School of Public Policy, University of Calgary. Her research evaluates climate policies, and examines the consequences and trade-offs of government regulation and policy on energy development. She has testified to the Senate of Canada and House of Commons on emissions pricing policies, and has advised governments in Canada in numerous capacities. Dr. Winter is actively engaged in increasing public understanding of energy and environmental policy issues, and she serves on several boards and advisory committees.

Jennifer Winter
Ph.D.

ENERGY AFFORDABILITY AND THE NET ZERO TRANSITION

Abstract: Canada's net zero target requires changes in energy use and types of energy used by households and businesses, and has the potential to reduce households' ability to afford energy services. While Canada has an official poverty line, there is no official measure of energy poverty — households' inability to afford energy services or maintain adequate living conditions — which is a correlate of income-related poverty. However, we have limited understanding of how environmental policy interacts with poverty, and households at risk of poverty, in Canada. This presentation will discuss the issue of energy affordability through the lens of electricity-sector net-zero investments and the effect on electricity rates, including distributional consequences.

MARCOS PELENUR

Marcos Pelenur
Ph.D.

Marcos Pelenur holds a PhD and MPhil in Engineering for Sustainable Development from the University of Cambridge, and is a Chartered Professional Engineer with Engineering New Zealand and a Chartered Engineer and Member of the Institution of Engineering and Technology UK. Dr. Pelenur is the Head of Sustainability and Decarbonization at the Behavioural Insights Team, Americas. The Behavioural Insights Team are global pioneers in the use of applied behavioural science, who improve lives and communities by helping all levels of government, the private sector and philanthropies tackle their biggest challenges. Previously, Dr. Pelenur was the Group Manager, Strategy, Insights and Regulations at the Energy Efficiency and Conservation Authority, and has worked across a range of senior policy leadership positions in the NZ Government.

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Research and Academic Grants Coordinator
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USING BEHAVIOURAL INSIGHTS TO SUPPORT A NET ZERO SOCIETY

Abstract: Delivery of Net Zero isn't just a technological or economic challenge. It represents and ultimately relies on social transformation and behaviour change. This presentation discusses the key behaviours – and their barriers – required for decarbonisation across the major emitting sectors of Energy, Transport, Food and Material Consumption, and introduces a framework for thinking about transformative behaviour-change, moving from the conventional focus on nudging individual action in discrete settings, to expanding the behavioural lens to include the systemic changes required to combat climate change.

MADANMOHAN GHOSH

Madanmohan Ghosh is Principal Economist of the Canadian Economic Analysis Division, Bank of Canada. His primary research interests include climate change policy analysis using large-scale simulation models such as computable general equilibrium and dynamic stochastic general equilibrium models. He also published extensively in the areas of international trade and foreign direct investment, public finance, poverty, and economic development. Previously, Madan worked as a Senior Advisor and Chief of the CGE Modeling Section at the Economic Analysis Directorate, Environment and Climate Change Canada. He has previous experience as a Senior Policy Advisor, Department of Finance and at the Department of the Innovation, Science and Economic Development of the Government of Canada.

Madan Ghosh
Ph.D.

ECONOMIC MODELING OF CLIMATE CHANGE AND MITIGATION POLICIES FOR THE MACROECONOMY: CURRENT STATUS AND SOME ANALYSIS

Abstract: Economic modeling of climate change mitigation policies, including the analysis of transitional and physical risks, are still evolving. A wide range of modeling approaches are used in the literature, each with its own strengths. These include integrated energy system models (IESM), computable general equilibrium (CGE) models, integrated assessment models (IAM), dynamic stochastic general equilibrium models (DSGE) and other macroeconomic models. Recognizing these strengths, the Bank of Canada uses a suite of models in analyzing the impacts of transition risks in Canada. The simulated scenario outcomes from MIT's Emissions Projection and Policy Analysis (EPPA), a recursive-dynamic CGE model, are used as inputs in the Bank of Canada's DSGE models to analyze the macroeconomic implications of transitioning to low carbon economy for Canada. The illustrative stressed scenario results suggest there are significant economic risks from climate change and the move to a low-carbon economy in Canada. The potential loss in terms of GDP from delayed action could exceed as much as 10% in 2050 under stressed scenario. Given the uncertain nature of the climate change and the pace of technological development, future work will look into enhancing the current state of modeling as well as exploring plausible technology scenarios and emissions pathways and its macroeconomic implications based on new information.

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ANDREW HOBBS

Andrew Hobbs is an Assistant Professor of Economics, University of San Francisco. He studies how droughts, floods, and other disasters affect people, and develops tools to reduce the impact of climate change on farmers. Dr. Hobbs focuses in particular on how the costs of climate shocks are distributed within households. He is currently working on combining machine learning and satellite data for faster and more accurate detection of disasters and on insurance to sustain women's businesses through droughts in Northern Kenya.

Andrew Hobbs
Ph.D.

MACHINE LEARNING WITH SATELLITE AND SURVEY DATA FOR INDEX INSURANCE

Abstract: Smallholder farmers in developing countries have always been adversely affected by year-to-year variation in weather patterns. Low rainfall, high temperatures, floods, and other disasters can wreak havoc on their livelihoods. Crop insurance has the potential to partially solve this problem, but traditional indemnity-based insurance is generally too costly to administer for smallholder agriculture. Index insurance, which provides payouts based on regional satellite, weather, or crop cut data offers a potential low-cost solution. However, developing accurate indices requires ground-truth data, which itself is costly to collect. This paper explores a new solution to this problem by combining existing household survey data from the World Bank's Living Standards Measurement Survey (LSMS) with satellite data to develop a hypothetical index for maize production. We show that by combining remotely sensed data and machine learning techniques, we can construct an accurate crop production index. We compare regularized regression, neural networks, and random forests, and are able to obtain reasonably good yield predictions with neural networks and random forests. This method is a promising new approach for developing accurate index insurance products at low cost with large potential benefits for smallholder farmers and governments seeking to address climate risk.

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