NEW ANALYTICAL TOOLS AND TECHNIQUES FOR ECONOMIC POLICYMAKING

OECD-NAEC and Baillie Gifford

In association with Partners for a New Economy (P4NE), Rebuilding Macroeconomics, Institute for New Economic Thinking (INET) Oxford, European Commission Joint Research Centre, International Institute for Applied Systems Analysis (IIASA), Fields Institute, Institute for Complexity Paris and the Santa Fe Institute

Draft Agenda

15-16 April 2019
OECD Conference Centre, Paris, CC4

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Understanding of economic issues such as growth, financial crises, systemic risk, innovation and sustainability can benefit from the revolution taking place across a range of scientific disciplines and in the social sciences. This revolution is being driven by the interaction between technological progress in computing and communications and the new sources and greater quantities of data this makes available.

This NAEC conference offers a timely opportunity for policy-makers, academics and researchers in economics to discuss the state-of-the-art policy applications emerging from the new analytical tools and techniques. It will look at how methodological innovations and inter disciplinary approaches such as agent-based modelling, nowcasting, machine learning, and network analysis could contribute to better understanding of the complexity and interaction of our economic, financial, social and environmental systems.

Monday 15 April

9:30 – 10:00	Opening remarks: Angel Gurria, OECD Secretary-General (video) Gabriela Ramos, OECD Chief of Staff and Sherpa Laurence Boone, OECD Chief Economist Martine Durand, OECD Chief Statistician

10:00 – 11:00 — Session 1: Why Do We Need New Analytical Tools and Techniques?

Moderator: Gabriela Ramos, OECD Chief of Staff and Sherpa

Speakers:
- J. Doyne Farmer, Director of Complexity Economics, Institute for New Economic Thinking, and Santa Fe Institute
- Robert Axtell, Chair of the Department of Computational Social Science at George Mason University, and Santa Fe Institute
- Jean-Philippe Bouchaud, Chairman, Capital Fund Management (CFM)
- William H. Janeway, Managing Director, Warburg Pincus

11:00 – 11:15	Break

11:15 – 12:30 — Session 2 : Nowcasting

Moderator: Lucrezia Reichlin, Professor of Economics, London Business School

Speakers:
- Laurent Ferrara, Head of International Macro Division, Banque de France
  When are Google data useful to nowcast GDP? An approach via pre-selection and shrinkage
- Elias Albagli, Chief Economist, Central Bank of Chile
  Real-time VAT data in Chile: Applications for Monetary and Financial Policy

12:30 – 14:00	Lunch

14:00 - 16:00 — Session 3 : Agent Based Modelling

Moderator: J. Doyne Farmer, Director of Complexity Economics, Institute for New Economic Thinking, University of Oxford

Speakers:
- Marco Gross, Economist, International Monetary Fund, and Christoph Siebenbrunner, Economist, Mathematical Institute, University of Oxford
  Money creation and liquid funding needs
- Stanislao Gualdi, Research Fellow, Capital Fund Management
  Optimal Inflation Target: Insights from an Agent-Based Model

- Torsten Heinrich, Researcher, Institute for New Economic Thinking, University of Oxford
  An ABM of the insurance-reinsurance sector: Conclusions for systemic risk, market structure, and the insurance cycle
- Francois Lafond, Senior Research Officer, Institute for New Economic Thinking, University of Oxford
  Measuring Productivity Dispersion

Discussant:
- Robert Axtell, Chair of the Department of Computational Social Science at George Mason University, and Santa Fe Institute

16:00 – 16:30	Break
16:30 – 18:00	**Session 4 : Network Analysis**

Moderator: David Chavalarias, Director of the Complex Systems Institute of Paris

Speakers:
- Emanuele Pugliese, Research Fellow, Industrial Research and Innovation
  Complexity, innovation and the future of jobs
- Rajan Patel, Technical Specialist, Bank of England
  Textual complexity in bank regulation
- Gert Buiten, Senior Researcher, and Sjoerd Hooijmaaijers, Researcher, Statistics Netherlands
  A methodology for estimating the Dutch interfirm trade network
- Tom Hurd, Professor of Mathematics, McMaster University, Toronto
  Systemic Cascades in Financial Networks
- Igor Linkov, Risk and Decision Science Team Lead, US Army Engineer Research and Development Center
  Resilience and Efficiency in Interconnected Networks

Tuesday 16 April

9:30 – 11:00	**Session 5: Machine Learning and Big Data**

Moderator: Martine Durand, OECD Chief Statistician

Speakers:
- Claudio Cozza, Assistant Professor of Economics, Department of Economic and Legal studies, University of Naples "Parthenope"
  Can we predict firms' innovativeness? The identification of innovation performers in an Italian region through a supervised learning approach
- Janna Axenbeck, Researcher, Digital Economy
  What Do Websites Say About Firm-Level Innovation? - A Machine Learning Approach
- Michael Obersteiner, Programme Director, Ecosystems Services and Management, International Institute for Applied Systems Analysis (IIASA)
  Algorithmic policy making (through Hypernudging)

11:00 – 11:15	Break
11:15 – 12:45	**Session 6: Complexity and Social Science**

Moderator: Angus Armstrong, Director of Rebuilding Macroeconomics Network

Speakers:
- Chris Kempes, Professor, Santa Fe Institute
  Scaling theory and the structure of diverse systems
- Penny Mealy, Postdoctoral Research Officer, Institute for New Economic Thinking, University of Oxford

Interpreting economic complexity

- [Ross A Hammond](#), Director of the Centre on Social Dynamics and Policy, Brookings Institute and Santa Fe Institute
  Using ABM and new data streams to study public health
- [Elena Rovenskaya](#), Programme Director, Advanced Systems Analysis, IIASA
  Towards a systems perspective on national well-being

12:45-14:30	Lunch
14:30 - 16:00	**Session 7: Young Researchers**

Moderator: [Alan Kirman](#), Chief Advisor to the NAEC Initiative

Speakers:
- Eugenio Caverzasi, Post-Doctoral Researcher, Università Politecnica delle Marche
  Inequality and Finance in a Rent Economy
- Amir Sani, Researcher
  A Resting Time Policy for the Limit-order Book
- Guido de Blasio, Economist, Directorate General for Economics, Statistics and Research Bank of Italy
  Machine learning in the service of policy targeting: The case of public credit guarantees
- Ermanno Catullo, Economist, Università Politecnica delle Marche
  Forecasting in a complex environment: maching learning sales expectations in a SFC Agent based simulation model
- Jannes Klaas, Economist, University of Oxford, Said Business School
  If stress-tests are predictable, are they still useful?
- Luca Eduardo Fierro, Economist, Marche Polytechnic University
  We are the Robots and We (May) Come in Peace
- Kerstin Hötte, Student, Bielefeld University - Department of Business Administration and Economics
  How to accelerate green technology diffusion? An agent-based approach to directed technological change with coevolving absorptive capacity
- Nicolas Woloszko, Economist, OECD Economics Department
  Adaptive Trees, a novel method for economic forecasting

16:00 – 16:30	Break
16:30 – 18:00	**Session 8: Roundtable on New Approaches to Macroeconomic Modelling**

Moderator: [Laurence Boone](#), OECD Chief Economist

Speakers:
- [John Muellbauer](#), Senior Research Fellow and Professor of Economics, Nuffield College and Institute for New Economic Thinking
- [Matheus Grasselli](#), Professor of Mathematics, McMaster University and the Fields Institute, Toronto
- [J. Doyne Farmer](#), Director of Complexity Economics, Institute for New Economic Thinking and Santa Fe Institute

Discussant:
- James Carver, Investment Manager, Baillie Gifford

17:55	**Closing remarks**

William Hynes, NAEC Co-ordinator, OECD

18:00	**Cocktail** (George Marshall room)