
Expertise

System dynamics modeling of (a) economic and demographic systems, with emphasis on monetary and fiscal policy issues related to price dynamics, workforce dynamics, and mutual causation of demographics and economics; and (b) public policy design and implementation.

Education

Doctor of Philosophy in System Dynamics, University of Bergen, 2007

Master in Public Policy, Kennedy School of Government, Harvard University, 1972

Bachelor of Arts in Government and Mathematics, Texas Tech University, 1970

Current Positions

Professor Emeritus, Social Sciences Faculty, University of Bergen, Norway

Professor, Financial Economics Faculty, ISM University of Management & Economics, Lithuania

Professor, Economic Sciences Faculty, National University of Kyiv-Mohyla Academy, Ukraine

Adjunct Professor of Economics, Virginia Western Community College, United States

Previous Non-Academic Positions

President, Wheat Resources Inc., U.S.A. (1981-2005)

President, Wheat Luke & Hahn, U.S.A. (1979-81)

Vice President, Charles Owens & Associates, U.S.A. (1976-79)

Director of Federal Relations, University of Houston, U.S.A. (1975-76)

Staff Assistant to the President, The White House, U.S.A. (1972-75)

Grant-Funded Projects

Model-based Public Health Education (2016-2020). Funding provided by the Norwegian Centre for International Cooperation in Education. This four-year project is a collaborative interdisciplinary effort by the System Dynamics Group at the University of Bergen and the Public Health Program at the University of North Dakota to improve public health research and teaching capacity at both universities.

Learning Economics with Dynamic Modeling (Four grants: 2012-19). Funded by the Norwegian Centre for International Cooperation in Education. This is a collaborative teaching and research project involving the System Dynamics Group at the University of Bergen, the Finance Department at the National University of Kyiv-Mohyla Academy in Ukraine, the Mathematical Economics Department at Ivan Franko National University of Lviv in Ukraine, and the National Bank of Ukraine.

Erasmus+ Student and Faculty Mobility Project (Three grants: 2015-19). Funded by the European Commission, the Norwegian Centre for International Cooperation in Education, and the University of Bergen. This collaborative educational project generates two-way mobility of students and staff between the University of Bergen and the National University of Kyiv-Mohyla Academy.

Model-based Teaching, Research, and Policy Analysis in North Dakota (2015-16). Funded by the Norwegian Centre for International Cooperation in Education. This was a collaborative research and teaching project involving the System Dynamics Group at the University of Bergen and the Energy Institute at the University of North Dakota.

Demographics & Economics of Lithuania (2011-17). Funded by the Department of Geography at the University of Bergen, this project has evolved over time. The initial task involved modeling Lithuania's problematic labor market trends due to demographics: low fertility, high emigration, and an aging population. The next phase is a multi-industry macroeconomic model.

Work-in-Progress

Modeling Economic Dynamics. This two-volume book will serve as the primary textbook for courses taught at the National University of Kyiv-Mohyla Academy in Ukraine.

Peer-Reviewed Publications

- Teaching Endogenous Money with Systems Thinking and Simulation Tools. *International Journal of Pluralism and Economics Education* (forthcoming, 2017)
- Disappointing Outcomes: Can Implementation Modeling Help? with E. Bardach, in *Outcome-Based Performance Management in the Public Sector*, eds. E. Borgonovi, E.A. Pessina, and C. Bianchi. New York: Springer (2017).
- The Classical Cobweb Theorem and Real Commodity Market Behavior: Modeling Delayed Adjustment of Supply in Industrial Metals' Markets, with S. Glöser, J. Hartwig, and M. Faulstich. *System Dynamics Review*, 32 (3-4), 2016.
- Model-based Policy Design that Takes Implementation Seriously, in E. Johnston (ed.), *Governance in the Information Era*. New York: Routledge (2015).
- The Danger of Float: the Case of Ukraine*, with O. Faryna. Proceedings, International System Dynamics Conference; Cambridge, USA, 2015.
- Public Policy Implementation Modeling: the Classic Case of EDA in Oakland*, with E. Bardach. International System Dynamics Conference; Cambridge, USA, 2015.
- Learning Economics with Dynamic Modeling. A Norwegian-Ukrainian Collaboration Project*, with I. Stelmashenko and I. Lukianenko. International System Dynamics Conference; Cambridge, USA, 2015.
- A Systems Education at Bergen, with P. Davidsen, B. Kopainsky, E. Moxnes, and M. Pedercini. *Systems* 2(2), 2014.
- Dynamic Regional Economic Modeling: a Systems Approach, with Andrzej Pawluczuk. *Economics and Management* 4, 2014.
- Low Probability of Initiating nirS Transcription Explains Observed Gas Kinetics and Growth of Bacteria Switching from Aerobic Respiration to Denitrification, with J. Hassan, L. Bergaust, and L. Bakken. *PloS Computational Biology* 10(11), 2014.
- A System Dynamics Approach to Sea Lice Control in Norway, with K. Hamza and K. Rich. *Aquaculture Economics & Management* 18(4), 2014.
- Teaching Policy Design, Using a Case Study of Unintended Consequences when the EU Regulates Hospital Doctors' Hours*. International System Dynamics Conference; Cambridge, USA, 2013.
- Modeling Fertility in Lithuania: A Preliminary Report*. International System Dynamics Conference; St. Gallen, Switzerland, 2012.
- Exploratory Policy Modeling*. International System Dynamics Conference; Washington, USA, 2011.
- A Note on the Bathtub Analogy*. With E. Moxnes, P. Davidsen, and M. Sánchez. International System Dynamics Conference; Washington, USA, 2011.
- What Can System Dynamics Learn from the Public Policy Implementation Literature? *Systems Research and Behavioral Science* 27(4), 2010.
- Do Stock-and-Flow Feedback Diagrams Promote Learning in Macroeconomics? *International Journal of Pluralism and Economics Education* 1(4), 2010.
- Empowering Students to Compare Ways Economists Think: The Case of the Housing Bubble. *International Journal of Pluralism and Economics Education* 1(1), 2009.
- Teaching Economics as if Time Mattered, in J. Reardon (ed.), *Handbook of Pluralist Economics Education*. London: Routledge, 2009.
- Capturing the Dynamics of a Psychiatric Illness*, with J. Hassan. International System Dynamics Conference; Albuquerque, USA, 2009.

The Feedback Method of Teaching Macroeconomics: Is It Effective? *System Dynamics Review*, 23 (4), 2007.

The Feedback Method: A System Dynamics Approach to Teaching Macroeconomics. PhD dissertation, University of Bergen; Bergen, Norway, 2007. University of Bergen Open Research Archive (<https://bora.uib.no/handle/1956/2239>).

MacroLab: A Simulation Model & Interactive Learning Environment for Teaching Undergraduate Macroeconomics. Conference of the International Confederation of Associations for Pluralism in Economics; Salt Lake City, USA, 2007.

Feedback Loops in the Macro Instructor's Toolkit. Allied Social Sciences Association Conference; Chicago, USA, 2007.

The Problem of Heroin. With J.Q. Wilson and M.H. Moore. *The Public Interest*, Fall 1972.

Invited Papers and Presentations

First Steps to a System Dynamics-based Multi-Industry Model of Ukraine. Research Seminar, National Bank of Ukraine. 2017.

Endogenous Feedback Perspective on Money in a Stock-Flow Consistent Model. Research Seminar, National Bank of Ukraine. 2016.

Modeling Mortality in Lithuania. European System Dynamics Workshop; Istanbul, Turkey, 2013.

MacroLab: An Interactive Stock-and-Flow Macroeconomic Model. Stock-and-Flow-Consistent Workshop; Dijon, France, 2013.

Colombia's Demographic Transition: Causes and Consequences. Plenary session, Colombian System Dynamics Conference; Cali, Colombia, 2012.

A Simulation Model of Demography & Economy in Lithuania. European Conference on Operational Research; Vilnius, Lithuania, 2012.

What Can System Dynamics Learn from the Public Policy Implementation Literature? European System Dynamics Workshop; Palermo, Italy, 2010.

Will Latin America Grow Old Before It Grows Rich? Latin American System Dynamics Conference; Medellin, Colombia, 2010.

Dynamic Strategic Planning. International Week Conference, Centrum Business School of the Catholic University of Peru; Lima, Peru, 2010.

Learning Macroeconomics with MacroLab. Latin American System Dynamics Conference, Buenos Aires, Argentina, 2007.

The Feedback Method: Model-Based Learning in Macroeconomics. Conference of the Faculty of Computers and Information, Cairo University; Cairo, Egypt, 2007.

Other Presentations

Endogenous Money. International System Dynamics Conference; Delft, the Netherlands, 2016.

Dynamic Input-Output Modeling of North Dakota's Economy: A System Dynamics Approach. European Conference on Operational Research; Poznan, Poland, 2016.

Outlook for Price Dynamics in Europe: Inflation or Deflation? Business Systems Laboratory International Symposium; Vilnius, Lithuania, 2016.

Teaching Monetary Policy with Contrasting Methods, with M. Crook. Developments in Economics Education Conference; Birmingham, UK, 2015.

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- Learning Economics with Dynamic Modeling: an International Collaboration*, with Iryna Lukianenko. Developments in Economics Education Conference; Exeter, UK, 2013.
- Diagramming a Feedback Model of Emigration*, with R. Činčytė. European Conference on Operational Research; Vilnius, Lithuania, 2012.
- Getting Started with Simulation Software*. International Developments in Economics Education Conference; London, UK, 2011.
- Implementation Modeling*. Fall Research Conference of the Association for Public Policy and Management; Washington, USA, 2011.
- A Simulation Tool for the Rest of Us*. Fall Research Conference of the Association for Public Policy and Management; Washington, USA, 2011.
- Enabling Students to Compare Theories in Media Stories about the Economy*. Developments in Economics Education Conference; Cardiff, UK, 2009.
- Sachs' Poverty Trap Theory: A System Dynamics Translation*. Latin American System Dynamics Conference; Buenos Aires, Argentina, 2007.
- MacroLab: Using Simulation to Teach Macroeconomics*. Developments in Economics Education Conference; Cambridge, UK, 2007.
- Simplifying Learning Environments for Introductory Students*. International System Dynamics Conference; Boston, USA, 2005.
- MacroLab: A Teaching Model of the US Economy*. International System Dynamics Conference; Oxford, UK, 2004.
- Preview of MacroLab: A Teaching Tool for Macroeconomics*. Economics Literacy Workshop; Wilmington, USA (2004)
- Using Stocks and Flows to Learn Economics*. Midwest Conference on Student Learning in Economics; Akron, USA (2004).
- Does a Model Facilitate Learning?* Primary author, with L. Weathers & R. Goldstein, CLEExchange, 13(4), 2004.
- Model-Facilitated Learning of Essential Macroeconomics*. International System Dynamics Conference; New York, USA, 2003.
- A Systems Approach to Virginia's Education Standards*. International System Dynamics Conference; Bergen, Norway, 2000.
- A Systems Approach to Education Policy and Administration*. Systems Thinking and Systems Modeling Conference; Portland, USA, 2000.
- Teaching Government with System Dynamics*. Systems Thinking and Systems Modeling Conference; Portland, USA. 2000.

Invited Lectures, Seminars, and Workshops

24 at 20 institutions in 11 countries (2007-2017)

Supervision (2007-present)

PhD students (3)

Master students (55)

Awards and Honors

Dana Meadows Award for best student paper, International System Dynamics Conference, 2007
US National Teacher of the Year in Rural Telecommunications, 1996
Virginia Coach-of-the-Year in High School Girls Basketball (1995 and 1996)
Woodrow Wilson Fellowship, 1970
National Science Foundation Fellowship, 1969

Professional Affiliations and Service

Associate Editor, *System Dynamics Review* (2008-2017)
Advisory Board, *International Journal of Pluralism and Economics Education* (since 2009)
Policy Council member, International System Dynamics Society (2014-16)
President, Economics Chapter of the System Dynamics Society (2007-08)
Senior Fellow, Thomas Jefferson Institute for Public Policy (since 1996)

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