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Curriculum Vitae
Fall 2021

ROSS BATZER

Personal Data

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Citizenship: USA

Major Fields of Concentration

Macroeconomics, Public Economics, Computational Economics

Education

Degree	*Field*	*Institution*	*Year*
PhD	Economics	University of Minnesota (expected)	2022
MA	Economics	University of Minnesota	2019
BA	Economics	University of Minnesota	2015

Dissertation

Title: "Essays in Macroeconomics"
Dissertation Advisor: Professor V. V. Chari
Expected Completion: Summer 2022

References

Professor V. V. Chari	(612) 626-7151 chari002@umn.edu	Department of Economics University of Minnesota 4-101 Hanson Hall
Professor Christopher Phelan	(612) 625-2533 cphelan@umn.edu	1925 Fourth Street South Minneapolis, MN 55455
Professor Patrick Kehoe	(650) 725-3266 pkehoe@stanford.edu	Department of Economics Stanford University Landau Economics Building 579 Jane Stanford Way Stanford, CA 94035

Dr. Elena Pastorino

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Honors and Awards

2015 - 2016 *Bruce and Mildred Mudgett Fellowship*, University of Minnesota, Minneapolis, Minnesota
2015 *Johnson Scholar*, University of Minnesota, Minneapolis, Minnesota
2013 - 2015 *Gold National Scholarship*, University of Minnesota, Minneapolis, Minnesota
2012 - 2013 *Charter Scholarship*, University of Georgia, Athens, Georgia

Teaching Experience

2019 - 2021 *Tutor*, Tutored graduate student in computing and estimating structural models.
2016 - 2017 *Head Teaching Assistant - Principles of Microeconomics*, Department of Economics, University of Minnesota, Minneapolis, Minnesota

Research Experience

2017 - present *Research Assistant*, Department of Economics, Stanford University, Stanford, California
Research Assistant to Professor Patrick Kehoe.
2017 - present *Research Analyst/Visiting Scholar*, Research Department, Federal Reserve Bank of Minneapolis, Minneapolis, Minnesota

Working Papers

"Letting Your Past Define Your Taxes: Optimal History-Dependent Income Taxation with Neural Networks," job market paper
"What's Yours is Mine: Joint vs. Private Consumption and Taxation with Home Production " with Amy Handlan
"Labor Market Demand and Monetary Information Shocks," with Amy Handlan

Works in Progress

"Constrained Efficiency with Super-Rich Households"
"Home Production and Joint Taxation: Estimating Family Labor Supply with Neural Networks " with Amy Handlan

Computer Skills

Python (including numpy, pandas, scikit-learn and keras/tensorflow), Stata, Julia, Matlab, SAS, SQL

Languages

English (native)

Abstract
(Abstracts for each of my papers are available on my website.)

"Letting Your Past Define Your Taxes: Optimal History-Dependent Income Taxation with Neural Networks," job market paper

This paper uses neural networks to approximate optimal income taxation in an overlapping generations economy with uninsurable labor income risk and endogenous skill investment. For tractability, existing studies of optimal income taxation commonly restrict taxes to be simple parametric functions. I relax these parametric restrictions and also allow taxes to depend on households' entire income history, which requires solving a dynamic maximization problem with 41 state variables. To do this, I represent the tax function as a neural network that takes household income as inputs and iteratively updates network weights to maximize welfare. This approach maintains the feasibility of the optimal taxation problem with a large state space. I estimate the tax function on labor income that maximizes steady state welfare. I find that the welfare gains from non-parametric taxes are moderate and the gains from history-dependent taxes are potentially large. Under the optimal history-dependent tax system, the government uses history-dependence to incentivize high output by reducing taxes over the life cycle with higher levels of past income. Due to complementarity in production between skill types, higher output raises average wages through general equilibrium effects. Computing the fully nonlinear history-dependent optimal tax schedule gives guidance on which more easily implementable policies to consider: I find that a simple parametric function in average lifetime income mimics the key features of the full history-dependent policy. This simple policy captures 90% of the potential welfare gains from history-dependent policy.