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Professional Affiliation

University of Florida, Department of
Economics: Assistant Professor

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Undergraduate Studies:

B.A., Economics, University of Michigan, 2009

Graduate Studies:

The University of Chicago, Fall 2010 to Spring 2016
Ph.D. in Economics
Thesis Title: “*Transitions in Long Run Economic Growth*”

Thesis Committee:

Professor Brent Neiman
Univ. of Chicago Booth School of Business
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Professor Loukas Karabarbounis
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Professor Robert Lucas
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Professor Harald Uhlig
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Teaching and Research Fields:

Growth, Macroeconomics, Inequality

Teaching Experience:

University of Florida Macroeconomic Theory (PhD Core), Economics Growth (Undergraduate)

University of Chicago International Trade and Growth (PhD Field), Teaching Assistant for Professor Robert Lucas; Elements of Economic Analysis III (Undergraduate Intro to Macro.), Teaching Assistant for Chanont Banternghansa; Applied Macroeconomics I (PhD Field), Teaching Assistant for Professors Erik Hurst and Steve Davis; Empirical Analysis III (PhD Core), Teaching Assistant for Professors Derek Neal and Ali Hortacsu

Research Experience and Other Employment:

2009-2010 Brookings Institution, Research Assistant

2008-2009 Office of Tax Policy Research, University of Michigan, Research Assistant

Honors, Scholarships, and Fellowships:

2015-2016 Theodore W. and Esther Shultz Fellowship

2013-2015 Social Sciences Fellowship

2011-2012 Rosen Memorial Fellowship

2011 Lee Prize for best Price Theory Core

Professional Activities:

Conference Presentations: *BAME 2018, SEA 2017, RES 2017, Midwest Macro 2016, SED 2014*

Referee for: *Journal of Political Economy, Journal of Economic Theory*

Working Papers:

“*Urbanization, Long-Run Growth, and the Demographic Transition*” (Job Market Paper)

Advanced economies undergo three transitions during their development: 1. They transition from a rural to an urban economy. 2. They transition from low income growth to high income growth. 3. Their demographics transition from initially high fertility and mortality rates to low modern levels. The timings of these transitions are correlated in the historical development of most advanced economies. I unify complementary theories of the transitions into a nonlinear model of endogenous long run economic and demographic change. The model reproduces the timing and magnitude of the transitions. Because the model captures the interactions between all three transitions, it is able to explain three additional empirical patterns: a declining urban-rural wage gap, a declining rural-urban family size ratio, and most surprisingly, that early urbanization slows development. This third prediction distinguishes the model from other theories of long-run growth, so I test and confirm it in cross-country data.

“*The Rise and Fall of Armies*”

For a thousand years, income growth was associated with a rising military employment share. But this share peaked in the early 20th century, after which military employment shares fell with income growth. I argue that rising military shares were driven by structural change out of agriculture, and the recent declines are driven by substitution from soldiers towards military goods. I document evidence for this substitution effect: as countries' incomes rise, the ratio of their military expenditure share to their military employment share rises too. I introduce a game theoretic model of growth and warfare that reproduces the time series patterns of military expenditure and employment. The model also correctly predicts the cross-sectional pattern, that military employment and expenditure shares are decreasing in income during wars. Finally, I show that faster economic growth can reduce military expenditure in the long run.

“Why Are Countries’ Asset Portfolios Exposed to Nominal Exchange Rates?”
(Joint with Philip Barrett)

Most countries hold large gross asset positions, lending in their domestic currency and borrowing in foreign currency. As a result, their balance sheets are exposed to nominal exchange rate movements. We argue that when asset markets are incomplete, nominal exchange rate exposure allows countries to partially insure against shocks that move real exchange rates. We demonstrate that asset market incompleteness which features a meaningful portfolio choice can simultaneously generate realistic gross asset positions and also resolve the Backus-Smith puzzle: that relative consumptions and real exchange rates are negatively correlated. We also show that local perturbation methods that use endogenous discount factors to stabilize models are inaccurate when the average and steady state interest rates differ, even when they correctly characterize the average portfolio holdings. To address this, we develop a novel global solution method to accurately solve the equilibrium portfolio problem.

“Rational Expectations with Endogenous Information”

This paper presents a general solution method for rational expectations models with dispersed information when the information process is endogenous. First, I show how to solve models with exogenous information by applying a single matrix equation. Next, I present an algorithm, “Signal Operator Iteration”, which solves the model when information is endogenous. I characterize conditions under which the solution is unique and the algorithm converges. Finally, I apply the solution method to a model of local information. Firms observe prices and quantities in their own market, but not the aggregate state of the economy. They must make inferences about aggregate shocks through the impacts on endogenous prices. Observed prices do not fully reveal fundamental shocks, so money is non-neutral. All noisy signals are driven by fundamental shocks, observable to the econometrician, so data can discipline the information structure. The model is calibrated using US industry-level panel data.

“Terms of Trade Shocks and Heterogeneous International Portfolio Positions”
(Joint with Philip Barrett)

How do terms of trade shocks affect open economies? We use a panel of global commodity prices to estimate the dynamic effects of terms of trade shocks on macroeconomic variables for 93 countries. We find that terms of trade shocks resemble wealth shocks: a terms of trade improvement increases consumption and investment by more than output and decreases net exports, contrary to prior evidence and standard theory. To explain this outcome, we also show that terms of trade improvements increase countries' net foreign asset position, due to valuation effects of nominal net assets. To make sense of these results, we augment a standard business cycle model with realistic international portfolio choice. We estimate the model for a large sample of countries, and show that it can replicate our empirical findings: terms of trade improvements look like wealth shocks, and their importance for business cycles is heterogeneous, depending on the country's international portfolio position.

“Labor Shares and Income Inequality” (Joint with Loukas Karabarbounis and Brent Neiman)

The share of aggregate income paid as compensation to labor is frequently used as a proxy for income inequality. If capital holdings are very concentrated among high income individuals, increasing their share of GDP, all else equal, widens the gap with poorer workers. Indeed, two

striking features over the last three decades of many advanced and developing economies are the declining labor shares in income and the rise in income inequality. The relationship between factor shares and inequality, however, is not so simple in a richer world with realistic features such as endogenous portfolio decisions and capital-skill complementarity. In such a world, total inequality will change with (i) the labor share, (ii) the amount of within-labor and within-capital income inequality, and (iii) the degree to which the highest wage earners are also those earning the highest capital incomes. Macroeconomic trends and shocks that impact any one of these three moments are likely to impact simultaneously all of them. We develop a framework where all these terms are jointly determined and estimate the model to clarify the roles of changing technology, policies, and factor proportions on labor shares and total income inequality around the globe.