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Personal Information

Date of Birth: September 3, 1987
Nationality: Denmark

Academic Positions

2017– Assistant Professor, Department of Economics, Princeton University
2016–2017 Postdoctoral Fellow, Department of Economics, Harvard University

Education

2010–2016 PhD in Economics, Harvard University
Thesis title: “Essays in Macroeconometrics”
Advisor committee: Professors James H. Stock (chair), Gary Chamberlain, Gita Gopinath, and Neil Shephard
2006–2009 BSc in Mathematics-Economics, University of Copenhagen
2008–2009 Exchange student, College of Arts and Science, New York University

Teaching and Research Fields

Primary field: Econometrics
Secondary fields: International Macroeconomics, Monetary Economics

Teaching Experience

Fall 2016 *Econometric Methods* (graduate), Harvard
Spring 2015 *Financial Econometrics* (graduate), Harvard, TA for Prof. N. Shephard
Fall 2014 *Time Series Analysis* (graduate), Harvard, TA for Prof. J. H. Stock
Spring 2014 *Intro to Applied Econometrics* (graduate), Harvard, TA for Prof. G. Chamberlain
Spring 2014 *International Finance* (graduate), Harvard, TA for Prof. G. Gopinath
Spring 2013 *Intro to Applied Econometrics* (graduate), Harvard, TA for Prof. S. Hoderlein
Spring 2013 *International Finance* (graduate), Harvard, TA for Prof. G. Gopinath
Fall 2012 *Intro to Econometrics* (undergraduate), Harvard, TA for Prof. R. Winkelmann

Other Positions

2016–present Danish Academic Economists in North America, Board Member
2012–2015 National Bureau of Economic Research, Research Assistant, Prof. Gita Gopinath
2011–2012 National Bureau of Economic Research, Research Assistant, Prof. James H. Stock
2009–2010 Danmarks Nationalbank (Central Bank of Denmark), Student Helper
2009–2010 University of Copenhagen, Research Assistant, Prof. Peter Norman Sørensen

Invited Talks and Conference Presentations

- 2016–2017 NBER-NSF Time Series conference, Workshop on “New Approaches to the Identification of Macroeconomic Models” at U of Oxford, BU, NY Fed Research and Statistics Group, Penn State, Seoul National, UIUC, Chicago Econ, Brown, Yale, Federal Reserve Board International Finance Division, Society for Economic Dynamics conference, Computing in Economics and Finance conference
- 2015–2016 Chicago Booth, Columbia, Harvard Kennedy School, MIT, Princeton, U of Cambridge, UCL, UPenn

Referee Service

American Economic Review, Bernoulli, Econometrica, Economic Journal, Journal of Econometrics, Journal of Monetary Economics, Macroeconomic Dynamics, National Science Foundation, Oxford Bulletin of Economics and Statistics, Quarterly Journal of Economics, Review of Economics and Statistics, Review of Economic Studies

Awards and Scholarships

- 2013–2017 Certificate of Distinction in Teaching, Harvard University (awarded five times)
- 2013 International Research Grant, Harvard University Department of Economics

Peer-Reviewed Publications

“Empirical Evidence on Inflation Expectations in the New Keynesian Phillips Curve” (with Sophocles Mavroeidis and James H. Stock), *Journal of Economic Literature* 52(1), 2014, 124–188

Abstract: We review the main identification strategies and empirical evidence on the role of expectations in the New Keynesian Phillips curve, paying particular attention to the issue of weak identification. Our goal is to provide a clear understanding of the role of expectations that integrates across the different papers and specifications in the literature. We discuss the properties of the various limited-information econometric methods used in the literature and provide explanations of why they produce conflicting results. Using a common dataset and a flexible empirical approach, we find that researchers are faced with substantial specification uncertainty, as different combinations of various a priori reasonable specification choices give rise to a vast set of point estimates. Moreover, given a specification, estimation is subject to considerable sampling uncertainty due to weak identification. We highlight the assumptions that seem to matter most for identification and the configuration of point estimates. We conclude that the literature has reached a limit on how much can be learned about the New Keynesian Phillips curve from aggregate macroeconomic time series. New identification approaches and new datasets are needed to reach an empirical consensus.

“Consistent factor estimation in dynamic factor models with structural instability” (with Brandon J. Bates, James H. Stock, and Mark W. Watson), *Journal of Econometrics* 177(2), 2013, 289–304

Abstract: This paper considers the estimation of approximate dynamic factor models when there is temporal instability in the factor loadings. We characterize the type and magnitude of instabilities under which the principal components estimator of the factors is consistent and find that these instabilities can be larger than earlier theoretical calculations suggest. We also discuss implications of our results for the robustness of regressions based on the estimated factors and of estimates of the number of factors in the presence of parameter instability. Simulations calibrated to an empirical application indicate that instability in the factor loadings has a limited impact on estimation of the factor space and diffusion index forecasting, whereas estimation of the number of factors is more substantially affected.

“A note on proper scoring rules and risk aversion” (with Alex Peysakhovich), *Economics Letters* 117, 2012, 357–361

Abstract: When risk averse forecasters are presented with risk neutral proper scoring rules, they report probabilities whose ratios are shaded towards 1. If elicited probabilities are used as inputs to decision-making, naive elicitors may violate first-order stochastic dominance.

Other Publications

“New Calculation of Danmarks Nationalbank’s Effective Krone-Rate Index” (with Erik H. Pedersen), *Danmarks Nationalbank Monetary Review*, 2nd Quarter 2010, 139–144

Working Papers

“Bayesian Inference on Structural Impulse Response Functions” (job market paper)

Abstract: I propose to estimate structural impulse responses from macroeconomic time series by doing Bayesian inference on the Structural Vector Moving Average representation of the data. This approach has two advantages over Structural Vector Autoregressions. First, it imposes prior information directly on the impulse responses in a flexible and transparent manner. Second, it can handle noninvertible impulse response functions, which are often encountered in applications. Rapid simulation of the posterior of the impulse responses is possible using an algorithm that exploits the Whittle likelihood. The impulse responses are partially identified, and I derive the frequentist asymptotics of the Bayesian procedure to show which features of the prior information are updated by the data. The procedure is used to estimate the effects of technological news shocks on the U.S. business cycle.

“Estimation of Smooth Impulse Responses”

Abstract: I develop a method for optimally smoothing an estimated impulse response function. The degree of smoothing can be selected based on an unbiased estimate of the mean squared error, thus trading off bias and variance. The smoothing procedure is a member of a flexible and computationally convenient class of shrinkage estimators applicable to both time series and panel data. I give conditions under which the smoothed estimator dominates the initial non-smooth estimator in terms of mean squared error. I develop novel shrinkage confidence sets with valid coverage in a finite-sample normal location model with arbitrary known covariance structure. The finite-sample results imply uniform asymptotic validity of the confidence sets even when normality fails.

“Global Trade and the Dollar” (with Emine Boz and Gita Gopinath)

Abstract: We document that it is not bilateral exchange rates but the dollar exchange rate that drives global trade prices and volumes. Using a newly constructed data set of bilateral price and volume indices for more than 2,500 country pairs, we establish the following facts: 1) The dollar exchange rate quantitatively dominates the bilateral exchange rate in price pass-through and trade elasticity regressions. U.S. monetary policy induced dollar fluctuations have high pass-through into bilateral import prices. 2) Bilateral non-commodities terms of trade are essentially uncorrelated with bilateral exchange rates. 3) The cross-sectional heterogeneity in pass-through/elasticity across country pairs is related to the share of imports invoiced in dollars. Our results derive from fixed effects panel regressions as well as a Bayesian semiparametric hierarchical panel data model. Unlike standard panel regressions, the Bayesian approach allows us to quantify the cross-sectional heterogeneity of exchange rate pass-through/elasticities and the relation of this heterogeneity to dollar invoicing. Our findings strongly support the dominant currency paradigm as opposed to the traditional Mundell-Fleming pricing paradigms.

“Simultaneous Confidence Bands: Theoretical Comparisons and Suggestions for Practice” (with José Luis Montiel Olea)

Abstract: Simultaneous confidence bands are used in applied work to visualize estimation uncertainty for vector-valued parameters. Although many confidence bands have been proposed—e.g., Bonferroni, projection, and sup-t bands—theoretical comparisons and practical recommendations are lacking outside the linear regression model. In a general nonlinear setting, we show that commonly reported confidence bands have the same form, asymptotically: a consistent point estimator for the parameter of interest plus/minus c times

the vector of coordinate-wise standard errors. The sup-t band is known to be the narrowest band inside this one-parameter family that achieves simultaneous coverage. We show that, additionally, the sup-t band uniquely minimizes “worst case” regret among *all* translation equivariant bands, where the worst case is taken over possible loss functions in coordinate-wise lengths. Hence, the sup-t band is a good default choice when the researcher does not know the audience’s preferences. We propose a simple Bayesian implementation of the sup-t band, which has exact finite-sample simultaneous credibility and is often asymptotically equivalent with standard plug-in or bootstrap implementations. We apply the sup-t band to two settings where it has been overlooked: impulse response function estimation and sensitivity analysis in linear regression. In our applications, the sup-t band is at least 15-35% narrower than other simultaneous bands.

Research Papers in Progress

“An Empirical Bayes Approach to Seasonal Adjustment with Time-Varying Seasonals” (with James H. Stock)

“Semiparametric Inference About Long-Run Risks” (with Benjamin Hébert)

Updated July 3, 2017