

BULAT GAFAROV
PhD Candidate in Economics at Pennsylvania State University

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Personal

Russian citizen · J1 visa status · DOB 06/06/1988 · Married + Child

Fields of Interest

Econometric Theory · Macroeconomics · Computational Economics

References

Prof. Joris Pinkse	Prof. Patrik Guggenberger	Prof. Saroj Bhattarai
Advisor	Advisor	
Penn State University	Penn State University	University of Texas Austin
joris@psu.edu	patrik.guggenberger@gmail.com	saroj.bhattarai@austin.utexas.edu

Education

- 2011- *PhD in Economics*, (Fields: Econometric theory, Macroeconomics, International Economics, Game theory) Pennsylvania State University
- 2009-2011 *M.A. in Economics*, (Cum laude, GPA 4.9, Specialization: Advanced Macroeconomics, Finance, Data Analysis), New Economic School, Moscow, Russia
- 2005-2011 *B.Sc. and M.Sc. in Applied Mathematics and Physics*, (with distinction, GPA 5.0, Specialization: Applied Economics), Moscow Institute of Physics and Technology, Moscow, Russia

Working Papers

***"Inference on scalar parameters in set-identified affine models."* (Job Market Paper)**

This paper proposes both point-wise and uniform confidence intervals (CIs) for an element θ_1 of a parameter vector $\theta \in \mathbb{R}^d$ that is partially identified by affine moment equality and inequality conditions. The CIs are based on an estimator of a regularized support function of the identified set and have a closed-form. I provide examples in which my CIs are shorter than those in the existing literature. Furthermore, unlike much of the existing literature, the proposed CIs can be computed as a solution to a convex optimization problem, which leads to a substantial decrease in computation time. My approach can be used, for instance, to compute a CI for the returns to schooling using income bracket data without strong distributional assumptions.

"Delta-Method Inference for a Class of Set-Identified SVARs," joint with Matthias Meier (UBonn), and Jose-Luis Montiel-Olea (Columbia); recipient of the 2016 ESEM award for best paper in Applied Economics by young researchers (Geneve 2016); revision requested by the Journal of Econometrics.

This paper studies Structural Vector Autoregressions that impose equality and/or inequality restrictions to set-identify a single shock (e.g., a monetary shock). We make three contributions to the literature. (i) We present an algorithm to compute—for each horizon, each variable, a fixed vector of reduced-form parameters, and a given collection of equality and/or inequality restrictions—the largest and smallest value of the coefficients of the structural impulse-response function. (ii) We provide conditions under which the largest and smallest value of the structural parameters are directionally differentiable functions of the reduced-form parameters. (iii) We propose a computationally convenient Delta-method confidence interval for the set-identified coefficients of the structural impulse-response function. We present sufficient conditions to guarantee the pointwise consistency in level of the suggested inference approach. To illustrate our results, we use a monetary Structural Vector Autoregression estimated with monthly U.S. data. We set-identify an unconventional monetary policy shock and use our confidence bands to assess the effects of the announcement of the second part of the so-called Quantitative Easing program in August 2010.

“Projection Inference for Set-Identified SVARs,” joint with Matthias Meier (UBonn), and Jose-Luis Montiel-Olea (Columbia); submitted

We study the properties of projection inference for set-identified Structural Vector Autoregressions. A nominal $1 - \alpha$ projection region collects the structural parameters that are compatible with a $1 - \alpha$ Wald ellipsoid for the model’s reduced-form parameters (autoregressive coefficients and the covariance matrix of residuals). We show that projection inference can be applied to a general class of stationary models, is computationally feasible, and—as the sample size grows large—it produces regions for the structural parameters and their identified set with both frequentist coverage and robust Bayesian credibility of at least $1 - \alpha$. A drawback of the projection approach is that both coverage and robust credibility may be strictly above their nominal level. We ‘calibrate’ the radius of the Wald ellipsoid to guarantee that—for a given posterior on the reduced-form parameters—the robust Bayesian credibility of the projection method is exactly $1 - \alpha$. If the bounds of the identified set are differentiable, our calibrated projection also covers the identified set with probability $1 - \alpha$. We illustrate the main results of the paper using the demand/supply-model for the U.S. labor market in Baumeister and Hamilton (2015).

“Time Consistency and the Duration of Government Debt: A Signaling theory of quantitative easing,” joint with Saroj Bhattarai (UT Austin) and Gauti B. Eggertson (Brown); available as NBER Working Paper # 21336

We present a signalling theory of Quantitative Easing (QE) at the zero lower bound on the short term nominal interest rate. QE is effective because it generates a credible signal of low future real interest rates in a time consistent equilibrium. We show these results in two models. One has coordinated monetary and fiscal policy. The other an independent central bank with balance sheet concerns. Numerical experiments show that the signalling effect can be substantial in both models.

“Identification in dynamic models using sign restrictions” Available at SSRN 2384811 (2014).

“Do unobserved components models forecast inflation in Russia?,” Undergraduate Thesis, Higher School of Economics, WP BRP 35/EC/2013

Publications

“Ordinal dominance and risk aversion,” joint with Bruno Salcedo (Cornell), Economic Theory Bulletin, 2014

“Phillips Curve and Development of the Labor Market in Russia,” (in Russian) The Economic Journal of the Higher School of Economics, 2011. vol. 15. N2. pp. 155—176

Work in Progress

“Sources of Heterogeneity in Retail Price-Setting Behavior,” joint with Leonid Ogrel (PSU), Daniel Greenwald (MIT Sloan) and John Mondragon (Kellogg)

“Gains from Financial Integration when Investment is Irreversible,” joint with Barry Ickes (PSU) and Konstantin Kucheryavyy (U Tokyo)

“A Simulation-Based Toolbox for Solving High-Dimensional Dynamic Models,” joint with Konstantin Kucheryavyy (U Tokyo)

Teaching Experience

- 2016 Introduction to Econometrics, Instructor, (Avg. Evaluation 6.18/7) Pennsylvania State University
- 2012-2015 Topics in Econometrics, Instructor, M.A. in Economics, Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia (in Russian)
- 2011 Introductory Macroeconomics, Instructor, MBA program, Skolkovo School of Management, Skolkovo, Russia (in English)
- 2010–2011 Teaching Assistant: Probability Theory, Mathematical Statistics, Econometrics 1-4, Recursive Macroeconomics, M.A. in Economics, New Economic School, Moscow, Russia (in Russian)

Research Positions

- 2012– RA for Patrik Guggenberger, Barry Ickes, Saroj Bhattacharai, Pennsylvania State University
- 2009–2011 RA for Maria Petrova, Konstantin Styurin, New Economic School
- 2009– *Intern*, Laboratory of Economic Growth and Inflation Studies, Higher School of Economics

Honors and Awards

- 2016 Award for the two best papers in applied economics, the European Meeting of the Econometric Society
- 2009,2010 The best student paper, Dynasty Foundation

Professional Activities

Referee for Journal of Econometrics, the HSE Economic Journal

Presentations

- 2016 North American Summer Meeting of the Econometric Society, Philadelphia, Pennsylvania USA
- 2015 The World Congress of the Econometric Society, Montreal, Canada; 22nd International Symposium on Mathematical Programming, Pittsburgh, USA; PSU–Cornell Macro Workshop, The Pennsylvania State University, USA; Annual Conference of the Royal Economic Society, The University of Manchester, UK; Higher School of Economics, Moscow, Russia
- 2014 Latin American Meeting of The Econometric Society, University of São Paulo, Brazil; Workshop on non-standard monetary policy measures, European Central Bank, Frankfurt, Germany; EconCon 2014 conference, Princeton University, USA; Annual Meeting of the Society for Economic Dynamics, University of Toronto, Canada; Midwest Macro Meeting, The University of Missouri, USA
- 2013 The 23rd Annual Meeting of the Midwest Econometrics Group, Indiana University, Bloomington, USA; The 9th CIREQ Ph.D. Students' Conference, McGill University, Montreal, Canada
- 2012 Laboratory of Economic Growth and Inflation Studies, Higher School of Economics, Moscow, Russia; The 1st Prospects in Economic Research Conference, Pennsylvania State University

Summer Schools

Princeton Initiative: Macro, Money and Finance, Princeton University (2013); Initiative for Computational Economics Summer Workshop, University of Chicago Booth School of Business (2012)

Additional skills

Languages: Russian (native), English (fluent), German (basic), Spanish (basic)

Software: Matlab, Mathematica, R, Stata, Eviews, C++