Tolga Ozden

PhD Candidate in Economics

14 July 1992

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Programming

Matlab (Daily)

C & C++

oxMetrics

Stata

R

NetLogo

Julia

Eviews

Languages

Turkish (Native)

English

German

Japanese

Dutch

*Evaluations are partially available upon request.
**The latest available drafts can be found on my personal webpage.
***Invited with additional travel grant.

Hobbies

Fields of Research

Time Series Analysis, Adaptive Learning, Bayesian Econometrics, Monetary Economics.

Education

10.2017–	PhD Candidate in Economics Department of Quantitative Economics Supervisor: Prof. Cars Hommes (*University of Amsterdam*)	University of Amsterdam
2015-2017	M.Phil in Economics (8.3/10, *highest distinction*)	Tinbergen Institute
2012-2012	Erasmus Exchange Program Department of Economics	Utrecht University
2011-2015	B.A in Economics (3.9/4, *highest distinction*)	Bogazici University
2006-2011	German Abitur High School	Istanbuler Gymnasium

Research Visits & Relevant Work

2019	PhD Intern, Prudential Policy Directorate Bank of England, London
2018	PhD Intern & Visiting Scholar, Research Department National Bank of Belgium, Brussels
2018	Simulation-Based Science Weekly Meetings, Coordinator Institute for Advanced Studies, University of Amsterdam
2015	Research Assistant, Center for Econometrics Bogazici University
2014	Summer Intern, Deutsche Bank, Istanbul

Awards & Achievements

2015-2017	Amsterdam Merit Scholarship, *University of Amsterdam*
2015-2017	Full Scholarship, *Tinbergen Institute*
2015	Holland Scholarship, *University of Amsterdam*
2015	2^{nd}/120, Department of Economics , *Bogazici University*
2012	Erasmus Mobility Grant, *Bogazici University*
2011-2015	Ibrahim Bodur Scholarship, *Kale Holding A.S*, Turkey

Teaching Portfolio*

2017-2020	Teaching Assistant Time Series Econometrics (Bachelor, 3^{rd} year) Mathematical Economics (Bachelor, 3^{rd} year)	University of Amsterdam
2016-2017	Teaching Assistant Time Series Econometrics (M.Phil, 1^{st} year) General Equilibrium Theory (M.Phil, 1^{st} year)	Tinbergen Institute
2016-2017	Teaching Assistant Introduction to Finance (Bachelor, 1^{st} year)	Amsterdam Business School
2016-2017	Teaching Assistant Various MSc Finance/MBA courses	Amsterdam Business School
2013-2015	Teaching Assistant Public Finance (Bachelor, 3^{rd} year) Industrial Organization (Bachelor, 3^{rd} year) Intermediate Microeconomics (Bachelor, 2^{nd} year)	Bogazici University

Selected Presentations

2019 *-Expectations in Dynamic Macroeconomic Models (poster), Barcelona GSE Summer Forum.*

-Bank of England Internal Seminar, London

-WEHIA 2019, Bank of England Invited Policy Sesssion, City University London.

-Economic Modeling and Data Science (EcoMod 2019), University of the Azores, Ponta Delgado.

*-Doctoral Summer Workshop in Economics (Scientific Committee & Discussant), Venice***.*

-Doctoral Workshop (QED Network), Nova Business School, Lisbon.

2018 *-14th Dynare Conference, European Central Bank, Frankurt.*

*-New Ways of Thinking about Economic Policy (Discussant), Bank of England, London***.*

-Computing in Economics and Finance (CEF 2018), Milan.

*-New Approaches to Macro-Financial Instability, Bamberg***.*

-Workshop on Adaptive Learning in Macroeconomics, Bilbao.

-SBS Weekly Meetings, Institute for Advanced Studies, University of Amsterdam.

-CIMS DSGE Summer School Conference, University of Surrey.

*-Doctoral Workshop on Economic Theory, Bielefeld***.*

External Courses, Workshops and PhD Training

-Empirical Time Series Methods for Macroeconomic Analysis, Barcelona GSE Summer School, 2018

-Advanced Course on Occasionally Binding Constraints, University of Surrey, 2018

-Macroeconomic Modeling of Regime Switches, CEF 2018 Pre-Conference Workshop, 2018

-Statistical Learning and Data Science, Tinbergen Econometrics Lectures, 2017

-Expectations in Dynamic Macroeconomic Models, Dutch Central Bank, 2016

References

Research

Cars Hommes
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Rafael Wouters
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National Bank of Belgium
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Kostas Mavromatis
Economist
De Nederlansche Bank
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Edward Castronova
Professor of Media
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Teaching

Cees Diks
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Jan Tuinstra
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Research

Restricted Perceptions and Regime Switches[**]
(Joint with Rafael Wouters)

***Abstract**: We consider the estimation of Markov-switching DSGE models under adaptive learning (AL) in order to study the interaction between expectations and the business cycle over the Zero Lower Bound period. We assume that regime shifts by monetary policy are not directly observed by agents, instead they indirectly infer about the regimes to the extent that it feeds back into their information set. This setup results in so-called Restricted Perceptions Equilibria (RPE) consistent with a given information set, and standard E-stability conditions are applicable to these equilibria. We illustrate these conditions in two environments: a basic Fisherian setup, and the benchmark 3-equation New Keynesian model. We then use a variant of the Kim & Nelson (1999) filter to estimate MS-DSGE models under constant gain adaptive learning. Based on estimations of the 3-equation NKPC and workhorse Smets-Wouters models, our results can be summarized as follows: adaptive learning models outperform the REE benchmark in all cases and the Regime-switching REE model in most cases, suggesting that Markov-switching and Adaptive Learning approaches can be complementary in terms of model fit. Furthermore, we observe that the impulse responses and shock propagation differ under AL and REE setups: both supply and demand shocks can be subject to different patterns under AL over the transition period to the ZLB episode, depending on the information set. Focusing particularly on government spending shocks, we find that the proportional change in fiscal multipliers over the ZLB period is smaller under AL compared to the REE benchmark. This suggests that standard models may severely overestimate the impact of a fiscal expansion over this period following the 2007-08 financial crisis.*

Behavioral Learning Equilibria in the New Keynesian Model, De Nederlansche Bank Working Papers No. 654
(Joint with C. Hommes, K. Mavromatis and Mei Zhu)

***Abstract**: We introduce the concept of behavioral learning equilibrium (BLE) into a high dimensional linear framework and apply it to the standard New Keynesian model. For each endogenous variable, boundedly rational agents use a simple, but optimal AR(1) forecasting rule with parameters consistent with the observed sample mean and autocorrelation of past data. The main contributions of our paper are fourfold: (1) we derive existence and stability conditions of BLE in a general linear framework, (2) we provide a general method for Bayesian likelihood estimation of BLE, (3) we estimate the baseline NK model based on U.S. data and show that the relative model fit is better under BLE than REE, (4) we analyze optimal monetary policy under BLE and show that it differs from REE. In particular, we find that the transmission channel of monetary policy is stronger under BLE at the estimated parameter values.*

Sample Autocorrelation Learning in an Estimated Medium-Scale DSGE Model (In progress)
(Joint with C. Hommes & K. Mavromatis)

***Abstract**: We extend Hommes et. al. (2019) and estimate a medium-scale DSGE Model, Smets-Wouters (2007), under Behavioral Learning Equilibria (BLE) and Sample-autocorrelation (SAC) learning, where agents use a simple AR(1) forecasting rule with parameters consistent with past observed data. We compare our results to estimations under Rational Expectations Equilibrium (REE) and learning under Minimum State Variable (MSV) information set. Our contributions are as follows: (i) we show that AR(1) models, both with fixed-beliefs (BLE) and time-varying beliefs (SAC), perform better in terms of marginal likelihood and out-of-sample forecasting performance, (ii) we disentangle the effects on the information set, timing assumption and time-variation of expectations and show that the first two matter the most, (iii) we show that SAC-learning without a projection facility works as a plausible alternative to recursive least-squares learning.*

Macroprudential Policy Interactions in a Sectoral DSGE Model with Staggered Interest Rates (In progress)
(Joint with M. Hinterschweiger, K. Khairnar & T. Stratton)

***Abstract**: We develop a two-sector DSGE model with a detailed banking sector along the lines of Clerc et. al. (2015) to assess the impact of macroprudential tools (minimum, countercyclical and sectoral capital requirements, as well as and LTV limit) on key macroeconomic and financial variables. The banking sector features residential mortgages and corporate lending subject to staggered interest rates Ãă la Calvo (1983), which is motivated by the sluggish movement of lending rates due to fixed interest rate loan contracts. Other distortions in the model include limited liability, bankruptcy costs and penalty costs for deviations from regulatory capital. We estimate the model using Bayesian methods based on quarterly U.K. data over 1998Q1-2016Q4. Our contributions are threefold. We show that: (i) coordination of macroprudential tools may have a welfare-improving effect, (ii) macroprudential tools would have improved some macroeconomic indicators but not have prevented the Global Financial Crisis altogether, (iii) staggered interest rates may weaken the transmission of macroprudential tools that work through interest rates.*

Other policy papers:

Results of a massive experiment on virtual currency endowments and money demand. PLOS ONE 12(10): e0186407.
(Joint with Castronova E. and Zivic N, Andjelkovic I & Dekic M.)