

The Public Defense
of the Doctoral Thesis in Economics
by
Dániel Baksa
on

**Three Essays on Growth, Demography
and Macroeconomics**

will be held on
Tuesday, December 16, 2019 at 10:00 am
in the
N15 106 room
Central European University
Nádor street 15, Budapest

Thesis Committee:

László Csaba (Chair)

Balázs Világi (External member)

Ádám Zawadowski (Internal member)

Supervisor:

Attila Rátfai

Examiners:

Michał Brzoza-Brzezina, Associate Professor at Warsaw School of Economics
Deputy Director, Research Department, National Bank of Poland
(External Examiner)

Ádám Zawadowski, Associate Professor at Central European University
(Internal Examiner)

The doctoral thesis is available for inspection
at the CEU Department of Economics and Business

Abstract

Two of the three essays explore the possible consequences of demographic aging, while the third one estimates the main shocks of the convergence period of the Central-Eastern European countries. The first chapter shows that the secular stagnation hypothesis is valid only for those countries where the economic agents' expectation is consistent with the theory of rational expectation. The second chapter (joint work with Zsuzsa Munkácsi) demonstrates that population aging contributes to a higher volatility of nominal variables, and the monetary policy becomes less efficient in influencing the output gap. The third chapter (joint work with István Kónya) applies a neoclassical growth model and shows that, behind of the post-socialist CEE countries, productivity and financial shocks were the key determinants of the convergence.

Chapter 1 - Secular Stagnation and the Role of Expectations

This paper reconsiders the secular stagnation hypothesis through the lens of bounded rationality. The consequences of population aging on medium- and long-term equilibria are at the core of current macroeconomic discourse. According to the secular stagnation hypothesis, in aging societies, the GDP growth decelerates and the natural rate of interest decreases when households accumulate more savings for a longer lifespan. However, the negative relationship between the old-age dependency ratio and the real interest rate can be rejected or weakly explained by historical data from OECD countries. This paper presents a multi-period, Gertler-type OLG model that incorporates bounded rationality and empirically shows that a declining real interest rate is valid only for those countries where the agents' behavior is consistent with the rational expectation equilibrium, or where the agents have a relatively long planning horizon.

Chapter 2 - More Gray, More Volatile?

with Zsuzsa Munkácsi

The empirical and theoretical evidence on the impact of population aging on inflation is mixed, and there is no evidence regarding the volatility of inflation. Using advanced economies' data and a DSGE-OLG model - a multi-period general equilibrium framework with overlapping generations - we find that aging leads to downward pressure on inflation and higher inflation volatility. Our paper shows how aging affects the short-term cyclical behavior of the economy and the transmission channels of monetary policy. We also examine the interplay between aging and optimal central bank policies. As aging redistributes wealth among generations, generations behave differently, and the labor force becomes more scarce. Our model suggests that aging makes monetary policy less effective, and aggregate demand less elastic to changes in the interest rate. Moreover, in grayer societies, central banks should react more strongly to nominal variables to compensate for higher inflation volatility.

Chapter 3 - Convergence Stories of Post-Socialist Central-Eastern European Countries

with István Kónya

This paper views the growth and convergence process of five Central-Eastern European economies - the Czech Republic, Hungary, Poland, Slovenia and Slovakia - through the lens of an open economy, stochastic neoclassical growth model. We estimate for these countries a version of the model

augmented by simple financial frictions. Our main question is whether shocks to the growth rate of productivity (“trend”), or shocks to the external interest premium are more important to understand the volatility of GDP growth and its components. We find that while GDP growth fluctuations can be traced back to productivity shocks, the composition of GDP - and consumption in particular - was driven particularly by premium shocks. Investment-specific and labor-market shocks are also important. Our panel estimation allows us to separate global and local components for productivity-trend and interest-premium shocks. The results indicate that the global trend component is well approximated by the growth rate of the advanced European Union economies, and we also find tentative evidence that recent investment behavior is largely driven to a large extent by European Union funds. When looking at the global component of the implicit interest rate recovered from the estimation, we find that it tracks the observed real interest rate in the EU 15 countries until 2008, but sharply diverges thereafter. This final finding is consistent with the hypothesis that various capital market wedges and non-price restrictions to lending became important during and after the global financial crisis.

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EDUCATION

Central European University

*December 2019**

Department of Economics and Business

PhD in Economics

Thesis: Three Essays on Growth, Demography and Macroeconomics

Supervisor: Attila Rátfai

Overall GPA: 3.75/4

Corvinus University of Budapest

June 2009

Faculty of Economics

MA in Economics

Major: Macroeconomic analyst and forecaster

Minor: Applied Statistics

Thesis: Role and Possibilities of Fiscal Policy in General Equilibrium Models

Supervisor: Eszter Szabó-Bakos

Grade: Excellent with honors

POLICY WORK AND RESEARCH EXPERIENCE

Economist - International Monetary Fund

February 2019 - Present

Institute for Capacity Development

Washington, DC, USA

Customized Training for the Ministries of Finance of Georgia and Armenia

PhD Trainee - European Central Bank

June - November 2018

Directorate General Economics, Fiscal Policies Division

Frankfurt am Main, Germany

Developed a multi-country DSGE-OLG model for the euro area

Worked on forthcoming paper 'How costly are the pension reform reversals?'

Visiting Researcher - Bank of Lithuania

July - August 2017

Applied Research Department

Vilnius, Lithuania

Taught DSGE models (invited)

Worked on a paper 'More gray, more volatile? Aging and (optimal) monetary policy'

Economic advisor - Natural Resource Governance Institute

July - November 2016

Freelance

Budapest, Hungary

Developed a medium-scale semi-structural macroeconomic model (in Excel) for Mongolia

Junior Research Fellow - Hungarian Academy of Sciences January 2016 - August 2018
Institute of Economics, Macroeconomic research team *Budapest, Hungary*

Worked on a paper 'Interest premium and economic growth: the case of CEE'

Economist - OGRResearch July 2013 - August 2015
Macroeconomic modeling group *Prague, Czech Republic*

Emerging market analysis, developing Forecasting and Policy Analysis System
IMF Technical Assistance for Morocco

Economic advisor - Fiscal Responsibility Institute Budapest March 2011 - March 2018
Volunteer *Budapest, Hungary*

Macroeconomic projections and scenario analysis for Hungary

Economist - National Bank of Hungary January 2011 - June 2013
Department of Economics *Budapest, Hungary*

Hungarian Forecast and Policy Analysis System (FPAS) development
Fiscal DSGE-model

Junior Economist - Office of the Fiscal Council of Hungary July 2009 - December 2010
Macroeconomic modeling team *Budapest, Hungary*

DSGE-modeling, forecasting
Calibrated the GIMF-model for Hungary

Trainee - National Bank of Hungary July 2008
Department of Financial Analysis *Budapest, Hungary*

Data collection

TEACHING EXPERIENCE

GKI Gazdaságkutató Zrt *Budapest, Hungary*
2018-2019: DSGE-OLG models

AIReF, Independent Authority for Fiscal Responsibility *Madrid, Spain*
2018: DSGE-OLG models (invited)

Mathias Corvinus Collegium *Budapest, Hungary*
2017-2018: Macroeconomics (BA level)

Bank of Lithuania *Vilnius, Lithuania*
2016-2017: Macroeconomic modelling

Eötvös Loránd University *Budapest, Hungary*
2016-2017: Open economy macroeconomics (MA level)

Central European University *Budapest, Hungary*
2017: Data analysis (MA level, external lecturer)
2016: Macroeconomics, Data analysis (TA, MA level)

Bank Al-Maghrib

Rabat, Morocco

2014-2015: IMF Technical Assistance, DSGE-OLG model and FPAS-model development

Corvinus University of Budapest

Budapest, Hungary

2014: Monetary macroeconomics (MA level)

2010: DSGE modelling (MA level)

2008 - 2011: Macroeconomics (BA level)

RESEARCH INTERESTS

**Macroeconomics modeling
(Macro)econometrics**

Policy interactions and demography in DSGE models
Multivariate time series, cross sections; Bayesian econometrics

COMPUTER SKILLS

MATLAB

Dynare, IRIS

Statistical software

Stata, R, Eviews, SPSS

Other

LaTeX, WinQSB, Maple, Troll

LANGUAGES

Hungarian

native

English

fluent

German

intermediate

WORKING PAPERS

More Gray, More Volatile? Aging and (Optimal) Monetary Policy

co-author: Zsuzsa Munkácsi

Bank of Lithuania Working Paper Series 67, Bank of Lithuania; IMF Working Paper No. 19/198

Interest Premium and Economic Growth: the Case of CEE

co-author: István Kónya

Bank of Poland, NBP Working Paper, No. 266, 2017

Növekedés és Pénzügyi Környezet (in Hungarian)

co-author: István Kónya

Közgazdasági szemle, LXIV. Évf., 2017 Április (349-376. o.)

Mongolia Macro-fiscal Model

co-authors: Balázs Romhányi, Dávid Mihályi

Natural Resource Governance Institute, 2017

Aging, Informality and Public Policies in a Small Open Economy

co-authors: Mihnea Constantinescu and Zsuzsa Munkácsi

Bank of Lithuania, Discussion Papers Series, No 2/2016

Aging, (Pension) Reforms and the Shadow Economy in Southern Europe

co-author: Zsuzsa Munkácsi

Bank of Lithuania, Working Paper Series, No 32/2016

A Detailed Description of OGRE, the OLG Model

co-author: Zsuzsa Munkácsi

Bank of Lithuania, Working Paper Series, No 31/2016

Hungarian Model of Program evaluation (in Hungarian)

Fiscal Responsibility Institute Budapest, 2014

Natural Interest Rate in Hungary

co-authors: Dániel Felcser, Ágnes Horváth, Norbert Kiss M., Csaba Köber, Balázs Krusper, Gábor D. Soós Gábor and Katalin Szilágyi

National Bank of Hungary, MNB Bulletin, Special Issue, October 2013

The Hungarian Monetary Policy Model

co-authors: Jaromir Benes, Ágnes Horváth, Csaba Köber, Gábor D. Soós Gábor and Katalin Szilágyi

National Bank of Hungary Working Paper, 2013

Does "The" Multipliers Exist? Fiscal and Monetary Reactions, Credibility and Fiscal Multipliers in Hungary

co-authors: Szilárd Benk and Zoltán Jakab

Fiscal Council of Hungary Working Paper, 2010

Applied DSGE modeling

Lecture Note (in Hungarian), Corvinus University of Budapest, 2010

WORK IN PROGRESS

How Costly are Pension Reform Reversals?

co-authors: Carolin Nerlich and Zsuzsa Munkácsi

The Macroeconomic Effects of Pension Reforms

co-authors: Henrique Basso, Mihnea Constantinescu, Joao Domingues Semeano, Pascal Jacquinot, Zsuzsa Munkácsi, Carolin Nerlich, Lara Wemans

Secular Stagnation and the Role of Expectations