Application for the Robert Summers Fellowship on Economic Measurement

Conference on Research on Income and Wealth

Gonca Senel

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As a Research Economist at the Bureau of Economic Analysis (BEA), I specialize in constructing and disseminating economic statistics. My work focuses on advancing methodologies for international trade, productivity analysis, and understanding revisions in economic data. I specialize in creating tools that enhance the accuracy and clarity of economic statistics, helping policymakers and researchers make well-informed decisions.

One of my key projects, "A Value Chain Approach to Measuring the Production Structure of U.S. Exports: A Proof of Concept Measuring Embedded R&D", focuses on developing a new dataset to quantify the R&D component within international trade. This paper measures the R&D embedded in U.S. value-added exports by linking value-added trade data with KLEMS statistics. Utilizing BEA's domestic requirements tables and the BEA-BLS Integrated Industry-level Production Account, the paper offers a novel methodology to quantify R&D in global value chains. The findings reveal that while most R&D services are not directly exported, a deeper examination of upstream inputs uncovers significant embedded R&D. This result provides a new lens for understanding R&D's role in international trade.

Another important area of my research focuses on developing state-level capital stock estimates, addressing the lack of official data on capital stocks at the state level. Our study compares four experimental methods for estimating state-level capital stocks: allocating national capital stocks using state-specific industry value-added shares, applying the perpetual inventory method (PIM) combined with state-level allocations, utilizing manufacturing-specific data from the Annual Survey of Manufactures (ASM), and expanding to granular industry-specific data based on 3-digit NAICS codes. This work not only produces valuable new estimates but also evaluates the advantages and challenges of each approach. The findings have significant implications for regional economic analysis and policy evaluation, making this project a vital contribution to economic measurement. Moreover, we show that understanding the interstate capital flows also sheds light on international capital markets.

My research on "Decomposing Estimates of the Predictive Power of the Statistical Discrepancy on GDP and GDI Revisions" adds another dimension to my work in economic measurement. In collaboration with colleagues, this study builds on the findings of Lundsford (2023), which demonstrated the predictive power of the nominal statistical discrepancy between GDP and GDI on revisions to prior quarters' GDP growth rates. Expanding the analysis of Lundsford (2023), our work examines how statistical discrepancies influence revisions to individual GDP and GDI components, such as government consumption expenditures, private consumption expenditures, and gross private domestic investment. By analyzing revisions from 1995Q3 to 2022Q2 using datasets from BEA archives and the ALFRED database, this research provides new insights for policymakers. Results reveal that the predictive relationship varies across components and over time, emphasizing the importance of continuous refinement in measurement methodologies.

Previously, I was an Assistant Professor at Bowdoin College and served as a Research Affiliate at MIT and the Federal Reserve Banks of St. Louis and Chicago. During this period, my research expanded to include cutting-edge research on productivity, demographic impacts, and systemic financial risks, allowing me to experience both the demand and the supply side of economic statistics.

One of my key works, *Immigration, Endogenous Technological Choice, and Welfare Analysis,* published in *Macroeconomic Dynamics* (2020), investigates the effects of immigration on wages and welfare within a model featuring endogenous technology choice. The paper finds that technological adaptation mitigates the adverse wage effects of increased

high-skilled immigration, leading to welfare gains. You can access it here.

Another significant publication, *With Age Comes Immaturity: Do Sovereigns with Older Populations Issue Shorter Maturity Debt?,* appeared in *Economics Letters* (2021). This paper examines the relationship between population aging and debt maturity, revealing that older populations tend to issue shorter maturity debt, especially during periods of market segmentation. Find the full article here.

Finally, *Bank Consolidation and Systemic Risk: M&As During the 2008 Financial Crisis,* published in the *Journal of Financial Services Research* (2022), explores the relationship between bank mergers and systemic risk during the 2008 financial crisis. This research highlights the nuanced effects of consolidation on financial stability, identifying contrasting outcomes based on the sizes of the acquirers and targets. The article is accessible here.

The Conference on Research in Income and Wealth (CRIW), organized by the National Bureau of Economic Research (NBER), provides a unique platform for advancing the field of economic measurement. The conference brings together top researchers, policymakers, and practitioners, providing a platform to share insights and enhance cutting-edge methodologies. The CRIW conference is particularly relevant to my work as it emphasizes cutting-edge research on international trade and productivity, income distribution, and revisions to national accounts—areas that align closely with my expertise and current projects. Engaging with the CRIW community will allow me to share my findings on my current projects, gain valuable feedback, and explore new approaches to addressing challenges in economic measurement.

Given the current federal budget constraints, this fellowship presents a crucial opportunity for me to continue developing innovative tools and methodologies in economic measurement. Attending the CRIW meeting would provide an opportunity to present my findings, receive constructive feedback, and engage in the exchange of ideas at the leading edge of the discipline.

Thank you for considering my application. You can also find my cv attached. I would be honored to be considered for this fellowship and contribute to and learn from the CRIW community. Please feel free to contact me at gonca.senel@bea.gov for additional information or clarification.

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Current Positions:
Research Economist, Bureau of Economic Analysis, June 2023-present
Visiting Scholar, Federal Reserve Bank of Saint Louis, October 2022-April 2023
Research Affiliate, MIT, September 2018-August 2019
Visiting Assistant Professor of Economics, MIT, July 2017-August 2018
Visiting Scholar, Federal Reserve Bank of Chicago, June 2015-August 2015; June 2016-August 2016
Assistant Professor, Bowdoin College, July 2014-June 2023

Education:

Ph.D. in Economics, University of California, Los Angeles, 2014

M.A. in Economics, University of California, Los Angeles, 2010

Fields of Interest:
Primary : Macroeconomics, International Economics, International Finance
Secondary : Labor Economics

Publications:

1. Immigration, Endogenous Technological Choice and Welfare Analysis (**Macroeconomic Dynamics** First View, pp. 1 - 38 (2020)) Link to the Journal
2. With Age Comes Immaturity: Do Sovereigns with Older Populations Issue Shorter Maturity Debt?, with Mark L.J. Wright (Federal Reserve Bank of Saint Louis) (**Economics Letters** , Volume 29 (2021)) Link to the Journal
3. Bank Consolidation and Systemic Risk: M&As During the 2008 Financial Crisis, with Gregory Maslak (Honors thesis student, Bowdoin College) (**Journal of Financial Services Research** First View, (2022)) Link to the Journal

Working Papers:

1. Understanding Predictive Power of Statistical Discrepancy on GDP and GDI Revisions with Baoline Chen (BEA), Daniel Ripperger-Suhler (BEA), Jon Samuels (BEA) (in progress)
2. A Value Chain Approach to Measuring the Production Structure of U.S. Exports: A Proof of Concept Measuring Embedded R&D with Jon Samuels (BEA) (in progress)

3. Experimental Estimation of State-Level Capital Stock (in progress) with Christian Awuku-Budu (BEA) Kyle Hood (BEA) Daniel Kwon (BEA) Chris Lucas (BEA) Gonca Senel (BEA) Daniel Thang (BEA) (in progress)
4. One-child Policy, Skill-Biased Technology, and Growth Prospect of China with Ayse Okten Imrohoroglu (University of Southern California), Yao Tang (Peking University) and Ke Pang (Wilfrid Laurier University) (in progress) Link to the Paper
5. To Merge or Not to Merge: Determinants of Bank Consolidation During the 2008 Financial Crisis, with Elyas Elyasiani (Temple University), and Gregory Maslak (Honors thesis student, Bowdoin College) (submitted) Link to the Paper
6. On the First Light of the Fourteenth Day: Government Aid, Bank Mergers, and Systemic Risk During the 2008 Financial Crisis, with Elyas Elyasiani (Temple University) (in progress) Link to the Paper
7. Sovereign Bailouts and the Welfare Effects of Seniority Link to the Paper
8. Immigration and Productivity: New Evidence from US States (in progress)

Presentations:

- 2024-2025: NAMB (Bureau of Economic Analysis)
- 2023-2024: IARIW General Conference
- 2022-2023: Federal Reserve Bank of Saint Louis, Bureau of Economic Analysis
- 2018-2019: Lafayette College
- 2017-2018 : WEAI 2017, SEA 2017
- 2016-2017: LA Macro Workshop, Bates College, SEA 2016
- 2015-2016: Federal Reserve Bank of Chicago, University of Maine , SEA 2015
- 2014-2015: Williams College, Middlebury College
- Macroeconomics and Monetary Economics Proseminar, UCLA; International and Development Proseminar, UCLA; Macro Reading Group, UCLA
- WEA 2012 Annual Conference

Honors, Awards:

- Bureau of Economic Analysis Performance Award (2024)
- Bowdoin College Faculty Research Award (2018)
- UCLA Fellowship for Graduate Studies, Graduate Division 2009 - 2013
- Scientific and Technological Research Council Fellowship 2008-2013
- Bilkent University Best Master's Thesis Award in Economics, 2008
- Bilkent University Graduate Studies Fellowship and Tuition Scholarship 2005-2008
- Bilkent University Undergraduate Studies Fellowship and Tuition Scholarship 2001-2005

Teaching Experience:

Bowdoin College

- Principles of Macroeconomics
- Intermediate Macroeconomics I (Neoclassical Approach)
- Intermediate Macroeconomics II (New Keynesian Approach)
- Economics of the EU
- International Economics
- Topics in Finance
- Topics in International Finance

Programming Skills:

- Matlab (Fluent), Stata (Fluent), Gauss (Basic), Fortran (Intermediate), R (Intermediate), Python (Basic), Machine Learning (University of Maryland)

Language Skills:

- Turkish (Native), English (Fluent), French (Basic)