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研究課題名(和文) Information, Rationality, and Confidence: Implications for Real and Financial Cycles

研究課題名(英文) Information, Rationality, and Confidence: Implications for Real and Financial Cycles

研究代表者

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研究成果の概要(和文)：本プロジェクトは、行動学的な基礎に基づいた新しいメカニズムを導入することで、経済の変動を再現し、既存の文献に貢献することを期待しています。エージェントの選好、期待形成、情報に起因する歪みを探ることで、観測される経済変動の説明を提供することを目的としています。また、このプロジェクトは、研究者が自身の研究に利用できるツールキットを提供します。

研究成果の学術的意義や社会的意義

It contributes to the existing literature on behavioral macroeconomics and information frictions by integrating non-rational expectations into linear dynamics macroeconomic models and by providing structural interpretation of consumer confidence and understanding the underlying mechanism out of it.

研究成果の概要(英文)：The project expects to contribute to the existing literature by introducing a novel mechanism grounded in behavioral foundations to replicate economic fluctuations. By exploring the distortions arising from agents' preferences, expectation formation, and information, this project aims to provide an explanation for the observed fluctuations in the economy. This project also provides a toolkit that researchers can use for their own research.

研究分野：Economics

キーワード：Business cycles Diagnostic expectations Imperfect information Missperception Consumer confidence DSGE Rationality

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1 . 研究開始当初の背景

This project, titled "Information, Rationality, and Confidence: Implications for Real and Financial Cycles," aims to contribute to the existing literature on behavioral macroeconomics and information frictions. The field of macroeconomic research, particularly in the analysis of business cycles, has predominantly relied on the full information rational expectations (FIRE) hypothesis as a benchmark. However, there has been a significant body of research dedicated to understanding macroeconomic dynamics by relaxing this strict FIRE assumption.

Given the evidence from survey data that challenges the FIRE hypothesis, it is important to explore alternative approaches and examine the consequences of introducing deviations from rationality and full information. This project seeks to address these questions and shed light on the implications for economic fluctuations. By investigating the role of information, rationality, and confidence in macroeconomic dynamics, this research will contribute to a deeper understanding of behavioral macroeconomics and the impact of information frictions.

2 . 研究の目的

The primary objective of this research is threefold. Firstly, we aim to incorporate diagnostic expectations (DE), a form of expectational deviations from the rational expectations (RE) benchmark, into linear macroeconomic models, specifically within the New Keynesian framework. By doing so, we seek to explore the implications of these deviations for shedding light on the dynamics of models with nominal rigidities.

Secondly, we examine the consequences of introducing misperception into a simple permanent income consumption model. We consider a scenario where agents have an incomplete understanding of the underlying fundamentals and the quality of the information they receive. By investigating the implications of these behavioral modifications, we seek to understand how they impact the fit of the model to the observed data. This analysis will provide valuable insights into the role of information imperfections in shaping consumption dynamics.

Thirdly, we aim to offer a structural interpretation of survey measures of consumer confidence. To achieve this, we decompose observed consumption fluctuations into changes attributable to fundamental factors and those caused by temporary errors resulting from noisy information. By understanding the sources of confidence innovations, particularly at a state-level disaggregated level, we can gain a deeper understanding of the determinants of consumer confidence and its impact on economic fluctuations.

In summary, this research aims to incorporate diagnostic expectations into macroeconomic models, explore the implications of expectational deviations, analyze the effects of misperception on consumption dynamics, provide a structural interpretation of consumer confidence measures, and investigate the sources of confidence innovations. Through these endeavors, we seek to contribute to the existing literature on behavioral macroeconomics and enhance our understanding of the dynamics of economic systems.

3 . 研究の方法

In our analysis, we employ dynamic stochastic general equilibrium (DSGE) models to address our research questions. We estimate these models to gain insights into the topics under investigation. To illustrate, when incorporating diagnostic expectations into linear DSGE models, we solve and estimate a baseline imperfect information DSGE model. Additionally, we consider widely used full-information medium-scale DSGE models such as Smets and Wouters (2007) and Justiniano, Primiceri, and Tambalotti (2010). By comparing the results of these different models, we assess the implications of incorporating diagnostic expectations.

Regarding the analysis of misperception, as well as the structural examination of consumer confidence, we adopt a simple permanent income consumption model. This model allows us to explore the effects of misperception and estimate the model using relevant US consumption and productivity series. By utilizing these data, we aim to gain insights into the relationship between misperception, consumption dynamics, and the impact of consumer confidence on economic outcomes.

To summarize, our research employs DSGE models as a framework for analysis. We estimate these models to evaluate various aspects, such as the incorporation of diagnostic expectations and the implications of misperception. Additionally, we utilize a simple permanent income consumption model to investigate the structural aspects of consumer confidence. By employing these modeling approaches and estimating them with relevant data, we aim to provide empirical evidence and further our understanding of the research questions at hand.

4 . 研究成果

The following working papers have been drafted and co-authored:

- (1) "News or Animal Spirits? Consumer Confidence and Economic Activity: Redux" (jointly with Sangyup Choi, Jaehun Jeong, and Dohyeon Park).

Can consumer confidence accurately predict future economic activity? Previous research suggests that consumer confidence can serve as a reliable indicator of future economic outcomes. However, there is ongoing debate regarding the underlying mechanism driving this relationship. Some argue that changes in consumer beliefs, referred to as "animal spirits," directly influence economic activity (Blanchard 1993), while others assert that confidence measures contain valuable information about the current and future state of the economy (Barsky and Sims 2012). It remains uncertain whether the link between consumer confidence and economic activity is primarily driven by causal effects or informative signals about future productivity.

In this paper, we build upon the work conducted by Barsky and Sims (2012) in two significant ways. Firstly, we expand the sample period to include the Great Recession and subsequent Zero Lower Bound (ZLB) episodes, characterized by heightened potential for animal spirits to impact economic activity, and we reassess the role of news and animal spirits in explaining changes in confidence and their influence on the economy, taking into account the insights provided by Farmer (2012), Schmitt-Grohé and Uribe (2017), Heathcote and Perri (2018) among others. Secondly, we utilize unique quarterly state-level data on consumer confidence, consumption, output, and inflation, allowing us to leverage the diverse characteristics across states and better isolate the relationship between confidence and economic activity by considering common factors that may confound the analysis.

Our findings largely corroborate the conclusions reached by Barsky and Sims (2012) regarding the predominant role of news about the future in the relationship between consumer confidence and subsequent economic activity. At the same time, our analysis, which incorporates the Great Recession and Zero Lower Bound (ZLB) episodes, suggests that animal spirit shocks play a somewhat more notable role in explaining changes in confidence and consumption compared to the original study by Barsky and Sims (2012). Through our state-level panel VAR models, we also observe similar dynamics in consumption, output, and inflation as identified in Barsky and Sims (2012) at the aggregate level. Notably, even after accounting for time-fixed effects to control for broader factors such as monetary policy, federal fiscal policy, and common business cycles, our analysis reveals that consumption and output exhibit persistent responses to consumer confidence shocks, while inflation experiences a significant decline. These findings, obtained through both time series and cross-sectional extensions of the Barsky and Sims (2012) exercise, further support the interpretation that consumer confidence serves as an early indicator of future economic conditions.

- (2) "What Is Consumer Confidence?" (jointly with Jean-Paul L'Huillier and Robert Waldmann).

This paper employs estimated business cycle models to assess the meaning of consumer confidence, with a focus on information and expectation formation. We propose an informational mechanism that utilizes national accounts data to interpret consumer confidence measurements. We begin by establishing a foundation for measuring model-based consumer confidence, assuming imperfect consumer foresight and estimating confidence based on a structural interpretation of the economy. Our learning model captures the relationship between waves of optimism and pessimism and spending dynamics relative to productivity, accounting for changes driven by both fundamentals and unrelated information.

The method of estimating consumer confidence relies on two key assumptions: the information structure of agents, determined by the combination of permanent-transitory productivity decomposition and the signal on the permanent component, and a structural model that aligns with the permanent income logic of consumers' consumption behavior. Productivity, influenced by permanent and temporary shocks, is exogenously determined, and consumers receive noisy signals about permanent productivity. Guided by the permanent income hypothesis, consumers make spending decisions based on their expected future income.

By estimating the model parameters and looking at the productivity and consumption trends, we are able to estimate beliefs about the future, underlying structural shocks, and model-based consumer confidence as a function of consumers' beliefs and shocks. The estimated consumer confidence is then compared with survey-based confidence indices, such as the Index of Consumer Sentiment (ICS) in the United States. We show a strong and statistically significant correlation of 0.52 between model-based consumer confidence and the ICS, which increases to 0.79 when high-frequency noise is smoothed out using a band-pass filter. Furthermore, the model-based measures exhibit significant correlation with survey-based measures for nine out of the fourteen European countries analyzed, even without using the survey data as input. Overall, this research contributes valuable insights into consumer confidence interpretation and offers a robust framework for measuring and comparing it with survey-based indices.

(3) "Incorporating Diagnostic Expectations into the New Keynesian Framework" (jointly with Jean-Paul L'Huillier and Sanjay R. Singh).

This paper explores the incorporation of diagnostic expectations (DE) as a realistic behavioral model of inference within the New Keynesian framework. We show that diagnostic expectations generate extra amplification in the presence of nominal frictions; a fall in aggregate supply generates a Keynesian recession; fiscal policy is more effective at stimulating the economy. We perform Bayesian estimation of a rich medium-scale model that incorporates consensus forecast data. Our estimate of the diagnosticity parameter is in line with previous studies. Additionally, our empirical analysis provides supporting evidence for the diagnostic model. Overall, diagnostic expectations offer new mechanisms for understanding and explaining fluctuations in economic activity.

Furthermore, we anticipate completing a draft tentatively titled "Misspecified Beliefs and Fluctuations" by the end of this year.

The works have been presented at various academic conferences and seminars, including the NBER: Methods and Applications for DSGE Models, the 2021 Society of Economic Dynamics (SED), the 2021 North American Summer Meeting, the 2021 Asian Meeting of the Econometric Society, the 2022 China Meeting of the Econometric Society, the RCEA Time Series Econometrics Workshop, the Korean Macroeconomic Research Group, the Midwest Macro Meeting (Fall 2022), Sogang University, Keio University, Korea University, Bank of Finland, Sapienza University of Rome, Academia Sinica, Waseda University, Tohoku University, and Hosei University.

5. 主な発表論文等

〔雑誌論文〕 計0件

〔学会発表〕 計9件（うち招待講演 1件 / うち国際学会 0件）

1. 発表者名 Donghoon Yoo
2. 発表標題 Diagnostic Expectations and Macroeconomic Volatility
3. 学会等名 Macroeconomics Workshop - Keio University
4. 発表年 2021年

1. 発表者名 Donghoon Yoo
2. 発表標題 Incorporating Diagnostic Expectations into the New Keynesian Framework
3. 学会等名 Korean Macroeconomic Research Group
4. 発表年 2021年

1. 発表者名 Donghoon Yoo
2. 発表標題 Topics in Macroeconomics: Information Frictions and Diagnostic Expectations
3. 学会等名 Special Lectures - Sogang University (招待講演)
4. 発表年 2022年

1. 発表者名 Donghoon Yoo
2. 発表標題 Incorporating Diagnostic Expectations into the New Keynesian Framework
3. 学会等名 Brownbag Seminar - Sogang University
4. 発表年 2021年

1. 発表者名 Donghoon Yoo
2. 発表標題 Condence, Fundamentals, and Consumption
3. 学会等名 Schumpeter-BSE-Seminar
4. 発表年 2021年

1. 発表者名 Jean-Paul L'Huillier
2. 発表標題 Diagnostic Expectations and Macroeconomic Volatility
3. 学会等名 Virtual East Asia Macroeconomics Seminar Series
4. 発表年 2021年

1. 発表者名 Jean-Paul L' Huillier
2. 発表標題 Diagnostic Expectations and Macroeconomic Volatility
3. 学会等名 City University of Hong Kong Economics Seminars
4. 発表年 2021年

1. 発表者名 Jean-Paul L' Huillier
2. 発表標題 Diagnostic Expectations and Macroeconomic Volatility
3. 学会等名 IER-Hitotsubashi University Macroeconomics Seminars
4. 発表年 2021年

1. 発表者名 Jean-Paul L' Huillier
2. 発表標題 Diagnostic Expectations and Macroeconomic Volatility
3. 学会等名 New Economics School Research Seminars
4. 発表年 2021年

〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織		
氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考

7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計1件

国際研究集会 The 1st Winter Workshop in Recent Advances in Macroeconomics	開催年 2022年～2022年
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8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関			
	米国	Federal Reserve Bank of Cleveland	University of California, Davis	
韓国	Korea University	Sogang University	Dongguk University	他3機関