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研究課題名（和文）Population Aging, Social Insurance and Public Policy: a Cross-Country Study（国際共同研究強化）

研究課題名（英文）Population Aging, Long-term Care, and Health Insurance Market: a General Equilibrium Life-Cycle Analysis(Fostering Joint International Research)

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研究成果の概要（和文）：本研究プロジェクトでは、高齢化社会における長期介護の重要性を、個人にとっての最適な選択、家族構造、長期介護市場と経済全体との相互関係といった点から解明することを目的とする。米国から得られたデータをもとに、長期介護の需要を把握し、高齢層における消費・貯蓄・医療行動を分析する他、単身/既婚世帯のライフサイクルモデルを開発し、消費・貯蓄行動及び長期支出を分析している。また、公的医療保険制度メディケイドにより貧困層向けに基礎的な水準の長期介護が提供されている米国を基準としつつ、日本の制度に近い皆保険的な長期介護を提供する場合の政策実験も行い、福祉に与える影響を解明している。

研究成果の概要（英文）：We aim to investigate the importance of long-term care(LTC) in an aging society, including individual's optimal choices, the role of family structure and the interaction between the LTC market and the aggregate economy. We have collected household level panel data (PSID/HRS/MEPS datasets) from US that allows us to understand the demand of LTC and to analyze the consumption/saving/medical care behaviors in old ages. We have developed a life-cycle model with single and married households to analyze the behaviors of consumption, saving and long-term expenditures. We have developed an approach to solve for the model numerically and a computer program to provide quantitative analysis by simulations. We set our benchmark to the US economy, in which a means-tested public LTC insurance, Medicaid, provides a basic level of LTC for poor people. We have done a policy experiment on a reform of providing universal coverage of LTC, which is close to the Japanese system, and investigate the welfare implications.

研究分野：Macroeconomics and Public Policy

キーワード：long-term care population aging Medicaid

1 . 研究開始当初の背景

Population aging has become a serious problem in most developed countries. The demand of LTC increases accordingly. However, LTC is expensive. LTC system varies across countries. For example, the US has a means-tested public LTC insurance, Medicaid, which provides a basic level of LTC for poor people. In contrast, Japan has an universal LTC coverage, in which the mandatory Long-Term Care Insurance covers formal LTC services regardless of individual's income/wealth. Among LTC services, nursing home is very expensive. Policies can prevent overuse of nursing home (related to the moral hazard problem) or can encourage other type at-home services might be preferred in an aging society. Therefore, family structure and interaction within family members might be important.

Developing countries generally have not prepared for the aging problem, which might appear rapidly in the near future. For example, it's forecasted that even for Vietnam currently in a very low income level, its old-age dependency ratio will increase from current 10% to 40%, which will be higher than that in the US, in 2060.

2 . 研究の目的

We aim to investigate the importance of long-term care (LTC) in an aging society. Issues include individual's optimal choices, the role of family structure and the interaction between the LTC market and the aggregate economy. Furthermore, we will compare alternative public LTC insurance systems and discuss the optimal government intervention and corresponding welfare implications. Moral hazard and adverse selection problems are crucial for analyzing the LTC insurance provision. We first will discuss a means-tested public LTC insurance, represented

by the US, in which Medicaid provides a basic level of LTC for poor people, and an universal LTC coverage, represented by Japan, in which the mandatory Long-Term Care Insurance covers formal LTC services regardless of individual's income/wealth. The financing scheme of the public LTC insurance will be also discussed because LTC is expensive. It will be a heavy burden for the government given the trend of population aging. The corresponding taxation arrangement, redistribution effects and welfare implications are also important issues in this study. We also study the impacts of aging in developing countries in the near future, use a general equilibrium framework and further consider endogenous fertility decisions for designing optimal social/population policies.

3 . 研究の方法

We develop a life-cycle model with single and married households to analyze the behaviors of consumption, saving and long-term expenditures. We use a numerical approach to solve for the model quantitatively. We use data to estimate the model parameters and perform model simulations for policy experiments.

4 . 研究成果

We study the importance of long-term care (LTC) in an aging society, including individual's optimal choices, the role of family structure and the interaction between the LTC market and the aggregate economy in this project. We have collected household level panel data (PSID/HRS/MEPS data sets) from the US that allows us to understand the demand of long-term care and to analyze the consumption/saving/medical care behaviors in old ages. We have also developed a life-cycle model with single and married households to

analyze the behaviors of consumption, saving and long-term expenditures. We have also developed an approach to solve for the model numerically and a computer program to provide quantitative analysis by simulations.

We set our benchmark to the US economy, in which a means-tested public LTC insurance, Medicaid, provides a basic level of LTC for poor people. We have done a policy experiment on a reform of providing universal coverage of LTC, which is close to the Japanese system, and investigate the welfare implications.

We find that a means-tested public LTC insurance, represented by Medicaid in the US, has a distortion on saving. A reform to an universal coverage as in Japan may improve the social welfare.

A part of our findings has been presented at the Society of Economic Dynamics annual conference in Edinburgh, UK, Economics seminar at Arizona State University, US, Economics seminar at New South Wales University, Australia and NTU macroeconomics workshop in Taipei, Taiwan during 2017 to exchange opinions with experts in this field.

5. 主な発表論文等

(研究代表者、研究分担者及び連携研究者には下線)

〔雑誌論文〕
(計4件)

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2. Minchung Hsu, "Declining Birthrate and Aging Population in Asia — Educational Support to Low-Income Households Improves Quality of Labor Force and

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3. Minchung Hsu, "Population Aging, Health Care, and Fiscal Policy Reform: The challenges for Japan." Invited article contribution to *Formiche*, an Italian magazine about politics, economics and culture. March 2018. pp. 42-45. **Non-refereed**
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〔学会発表 Presentations at academic conferences〕(計4件)

1. Gary Hansen, Minchung Hsu and Elena Kapatina, "Reforming Medicaid long-term care insurance" Society for Economic Dynamics Annual Meeting, Edinburgh, UK, 2017.
2. Minchung Hsu, "Reform of long-term care insurance," NTU macroeconomics workshop, Taipei, Taiwan, 2017
3. Gary Hansen, "Reforming Medicaid long-term care insurance" Macroeconomics Seminar, Arizona State University. 2017
4. Elena Capatina, "Reforming Medicaid long-term care insurance" Economics seminar at New South Wales University, Australia 2017

〔図書〕(計 件)

〔産業財産権〕
○出願状況(計 件)

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〔その他〕

1. Minchung Hsu, “Aging, Low Fertility and Development – What is the right population policy for developing countries in Asia?” *Economics Classroom in Nikkei News* (経済教室:日本経済新聞), May 30, 2017, pp.27 (in Japanese)

6. 研究組織

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