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研究課題名(和文) Fertility, Marriage and Female Labor Supply: Implications for Public Policy in Aging Societies

研究課題名(英文) Fertility, Marriage and Female Labor Supply: Implications for Public Policy in Aging Societies

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研究成果の概要(和文)：2つの主要な研究プロジェクトを展開した。最初のプロジェクトでは、日本における結婚と出産の意思決定に焦点を当て、人口政策に関する示唆を提供した。ライフサイクルモデルを開発し、教育と労働市場の状況の変化が結婚と出生率に及ぼす影響を調査する実験を実施した。2番目のプロジェクトでは、日本における女性の労働力供給と税制改革を研究した。2004年と2018年に実施された配偶者税控除に関する改正が女性の労働供給に及ぼす影響を調査し、配偶者税控除の代替案が女性の労働力供給を促進する上でより効果的であるかどうかについて議論した。

研究成果の学術的意義や社会的意義

Japan is an aging society with a long life expectancy and a low fertility rate. This study delivers useful implications on how to improve fertility and the labor force in Japan. The findings emphasize the influence of the labor market/tax on marriage decisions, fertility, and female labor supply.

研究成果の概要(英文)：We have developed two main research projects under this Kakenhi. The first project is to study marriage and fertility decisions in Japan and derive meaningful implications on population policy. We developed a life-cycle model and conducted experiments to explore the effects of changes in education and labor market conditions on marriage and fertility. Our findings suggest that a worsened labor market condition affects men's marriage decisions significantly which may reduce the marriage rate as well as the aggregate fertility rate in the long run. The second project is to study female labor supply and tax reforms in Japan. There were reforms on the spousal tax deductions conducted in 2004 and 2018. The aim of this project is to investigate the effects of these reforms on the female labor supply and discuss if alternative designs of spousal tax deduction can be more effective in encouraging female labor supply.

研究分野：Macroeconomics

キーワード：fertility marriage labor supply

様式 C - 19、F - 19 - 1、Z - 19 (共通)

1 . 研究開始当初の背景

Population aging has drawn global attention due to the challenges it poses for social welfare expenditures and the financial burden on governments. This phenomenon is often characterized by increased longevity coupled with declining fertility rates. Japan exemplifies this trend, as do many developed countries, with low total fertility rates (TFR) falling significantly below the replacement level. In Japan, the average TFR of married couples is approximately 1.8, while the aggregate TFR stands at a mere 1.4. Furthermore, around 20% of men in Japan have never married. Notably, statistics reveal a strong correlation between Japanese men's marriage status, education, and employment. To address these complex dynamics, it is crucial to analyze individual choices regarding marriage, education, and employment within an integrated framework. This comprehensive study is essential in order to identify effective policies that can support an aging economy and provide coherent solutions.

2 . 研究の目的

The primary objective of this research project is to establish a comprehensive framework that offers valuable policy implications for aging societies. A key focus is placed on designing effective population, education, and labor policies to counteract the negative impacts of population aging on economic growth and fiscal balance. By addressing these challenges proactively, policymakers can mitigate the adverse consequences associated with an aging population. Through this research, we aim to provide constructive insights and recommendations that will enable societies to navigate the complexities of population aging and ensure sustainable economic development.

3 . 研究の方法

We first extend the theoretical framework in Adda, Dustmann, and Stevens (2016, JPE) for linking the marriage market, labor market, and fertility/education decisions. We develop an overlapping generations model that characterizes individuals'/households' decisions on marriage, fertility, and labor supply over their life cycle. In our model, young individuals face a range of decisions concerning marriage, labor supply, fertility, and consumption. Conversely, older individuals have a simpler set of choices, focusing primarily on labor supply and consumption.

The marriage market is briefly described as follows. At the onset of their adult lives, each agent is randomly paired with a person of the opposite gender. The possibility of

remaining single exists if an agent fails to find a match. However, if an agent is fortunate to be matched, they can assess the characteristics of their potential partner, along with the randomly assigned match quality value. Based on these considerations, the agent must compare the value of being married against the value of remaining single. This assessment guides their decision on whether to enter marriage. If both individuals agree to marry, they proceed to form a household and maintain their marital relationship throughout their lives. This partnership encompasses shared responsibilities and joint decision-making regarding various aspects of life, including labor supply and consumption choices.

In addition, we also develop a general-equilibrium heterogeneous-agent model to investigate tax/fiscal policies on married households and their effects on female labor supply that takes into account the government's fiscal balance for further policy analysis. The households contain one female and one male member in the model and the female member makes decisions on time allocation between home and market work. We carefully model the income/social security tax rules for households in Japan to investigate their effects on the female labor supply.

4 . 研究成果

We have undertaken two significant research projects as part of our Kakenhi program, focusing on diverse aspects of Japan's societal dynamics. Our first project delves into the intricacies of marriage and fertility decisions within the country, aiming to draw insightful implications for population policies. To achieve this, we have developed an overlapping generations model that characterizes the intricate dynamics of matchings within the marriage market. This model not only examines the marriage decisions of singles but also encompasses fertility and labor supply choices for married couples.

Table 1: Stages of Total Fertility Rate

| Period | Average TFR |
|---------------------------|-------------|
| Stable Period (1960 - 75) | 2.05 |
| Transition (1976 - 05) | 1.56 |
| Stable Period (2006 - 17) | 1.40 |

Marriage is still an important factor for fertility because the non-marital birth ratio is very low in Japan (approximately 2% in 2016). We also find that the marriage rate has declined significantly in Japan. There are roughly 20% of men in age 50, who have never been married. The decades-long low fertility results in a shortage of labor that has been a serious problem in Japan. What is worse is that Japanese women tend to quit their jobs once been married or have children, and return to the labor market as part-time workers when their children become more independent. Therefore, the pattern of female labor supply has been an M shape in Japan for decades, which is unlike that observed in other developed countries. Through a series of carefully designed experiments, we have explored the impact of fluctuations in education and labor market conditions on marriage and fertility patterns. Our findings have revealed a noteworthy correlation between worsening labor market conditions and men's decisions regarding marriage. In the long run, such circumstances may lead to a reduction in both the overall marriage rate and the aggregate fertility rate.

Table 2: Female Labor Force Participation Rate (cross-sectional)

| Year/Age | Participation Rate by Age Group (%) | | | | | | Relative Participation Rate (20 29=1) | | | | | |
|----------|--|----|------|----|------|----|--|----|------|----|------|----|
| | 25 | 29 | 30 | 39 | 40 | 49 | 25 | 29 | 30 | 39 | 40 | 49 |
| 1995 | 66.4 | | 57.1 | | 70.4 | | 1 | | 0.86 | | 1.06 | |
| 2000 | 69.9 | | 59.3 | | 70.6 | | 1 | | 0.85 | | 1.01 | |
| 2005 | 74.9 | | 62.9 | | 72.5 | | 1 | | 0.84 | | 0.97 | |
| 2010 | 77.1 | | 67.0 | | 73.7 | | 1 | | 0.87 | | 0.96 | |
| 2015 | 80.3 | | 71.5 | | 76.2 | | 1 | | 0.89 | | 0.95 | |

Table 3: Distribution of Female Employment Types (2013-18)

| Age | Full time Reg. | Full time Non Reg. | Part time |
|-------|----------------|--------------------|-----------|
| 25 34 | 59.9% | 13.1% | 27.11% |
| 35 44 | 46.1% | 12.2% | 41.71% |
| 45 54 | 40.9% | 12.0% | 47.11% |

Our second research project has focused on the relationship between female labor supply and tax reforms in Japan. It is widely acknowledged that the country's low female full-time employment rate can be attributed, at least in part, to the prevailing spousal and tax deduction policies that inadvertently discourage married women from participating in the workforce.

In particular, we have scrutinized the reforms made to spousal tax deductions in 2004 and 2018. The primary objective of this project has been to investigate the ramifications of these reforms on the female labor supply and to assess whether alternative designs of spousal tax deductions could prove more effective in incentivizing greater female workforce participation. By thoroughly examining the outcomes of these policy changes, we aim to contribute to the ongoing discourse on improving the labor market landscape for women in Japan.

Both projects are in the process of submitting to international academic journals for publication.

The main results may be summarized to publish in news media for more public influence.

5. 主な発表論文等

〔雑誌論文〕 計10件（うち査読付論文 8件／うち国際共著 6件／うちオープンアクセス 0件）

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| 2. 論文標題 Economic fluctuations, volatility changes and the role of government spending in China: A structural analysis | 5. 発行年 2020年 |
| 3. 雑誌名 Pacific Economic Review | 6. 最初と最後の頁 512-538 |
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| 2. 論文標題 Demographic Change and Long-term Growth in China: Past Developments and the Future Challenge of Aging | 5. 発行年 2018年 |
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| 掲載論文のDOI（デジタルオブジェクト識別子） 10.1111/rode.12405 | 査読の有無 有 |
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| 2. 論文標題 Population Aging and Health Care: The Challenges for Japan | 5. 発行年 2018年 |
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| 1. 発表者名 Minchung Hsu |
| 2. 発表標題 Pension extension in developing economies |
| 3. 学会等名 SAET Annual Conference (国際学会) |
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| 1. 発表者名 Minchung Hsu |
| 2. 発表標題 Market Participation: Implications for the Shrinking Population in Japan |
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〔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 |
|-------|--|--|----|
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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0件

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 |
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