Population Aging in Japan: Stylized Facts, Causes, and Consequences

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Abstract. This study explores the impact of Japan's rapidly aging population from various angles, a pressing issue that stands at the forefront of global demographic challenges. The paper employs an interdisciplinary approach, integrating data analysis with societal and economic factors, to comprehensively explore the consequences of this demographic shift. The research encompasses a thorough examination of Japan's population trends, including birth and marriage rates, life expectancy, and the balance between urban and rural demographics. The aim is to not only illuminate the present condition but also to express the underlying causes and forecast potential long-term effects on society and the economy. A key discovery of the research is the intricate connections between Japan's educational advancements, particularly among women, and the nation's declining birth rate, revealing an interplay between societal progress and demographic pressures. The paper's significance lies in its contribution to the discourse on aging societies, offering a case study of Japan as a pioneer for similar global trends. From a policy standpoint, this paper proposes strategic recommendations for investors and policymakers. These include advocating for support structures that reconcile the increasing participation of women in the workforce with incentives for family growth, and advising leaders to foster a socio-economic environment that accommodates an aging demographic while promoting sustainable development. The findings and propositions underscore the need for innovative, adaptive strategies to address the complex implications of an aging population.

Keywords: Population Aging, Japan, Consequences.

1. Introduction

In recent years, the proportion of population aging has increased sharply worldwide, with Japan being one of the most severely affected countries. According to United Nations data, the population aged 65 and around in Japan has reached one-third of the total population, ranking at the forefront globally [1]. The continuous decline in Japan's birth rate is one of the important reasons for aging. Since the 1990s, Japan's total fertility rate has been decreasing. Moreover, with the improvement of medical care and living conditions, the average life expectancy of Japanese people continues to extend, further exacerbating the aging problem. The purpose of this study is to investigate the impact of population aging on Japanese society and economy and to propose countermeasures to help society and businesses adapt to the challenges brought by aging. As the number of elderly people increases, this study will also explore methods to improve the quality of life for the elderly. The significance of this research lies in maintaining social stability and balancing the welfare of all age groups by deeply understanding and addressing the issue of aging. This will not only promote economic growth but also provide valuable insights and strategies for other countries based on Japan's experience in solving the problem of aging.

2. Current Situation of Aging Population in Japan

2.1. Aging Process/Dynamic Changes

Figure 1 presents data on the median age of the population in Japan from 1955 up to 2023. The line is steadily ascending, starting at a median age of around 22 years in 1955 and increasing to almost 50 years in 2023. The overall trend suggests that Japan's population is aging, with the median age nearly doubling over the given time.

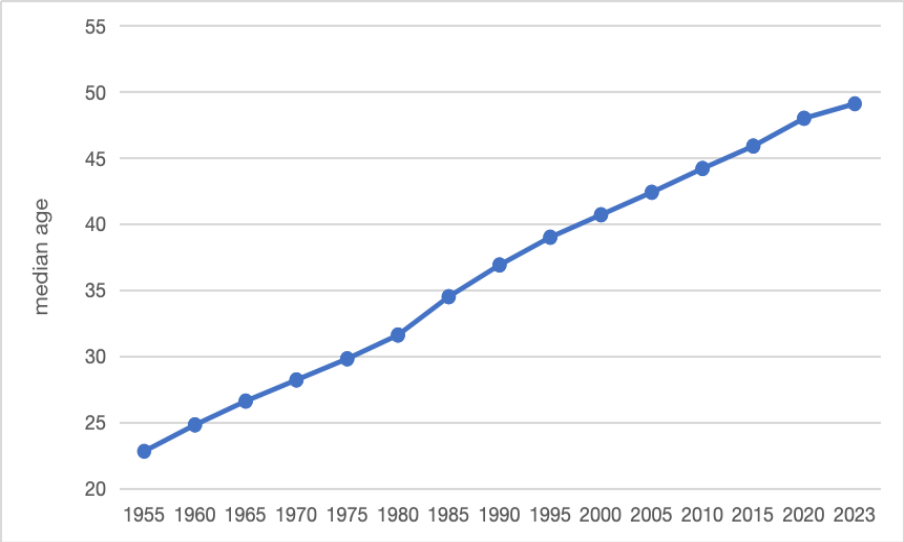

Figure 1. Median age in Japan
Data source: https://www.worldometers.info/demographics/japan-demographics/
Photo credit: Original

2.2. Trend Characteristics

Figure 2 illustrates the aging population in Japan, with a decreasing birth rate and an increasing proportion of elderly people. The data reflects the percentage of each age group within the total population for the given years. It highlights a dramatic shift in the population structure: The percentage of the population aged 0-14 years has been decreasing from 35.4% in 1950 to an estimated 11.1% by 2050. The working-age population (15-64 years) had its highest percentage in 1990 at 69.7% and is projected to decrease to 51.4% by 2050. There is a marked increase in the percentage of the population aged 60+ years, from 7.6% in 1950 to a projected 43.7% by 2050. The population aged 65+ years is also increasing significantly from 4.9% in 1950 to a projected 37.5% by 2050. Notably, the population aged 80+ years is increasing from 0.6% in 1950 to a projected 15.6% by 2050.

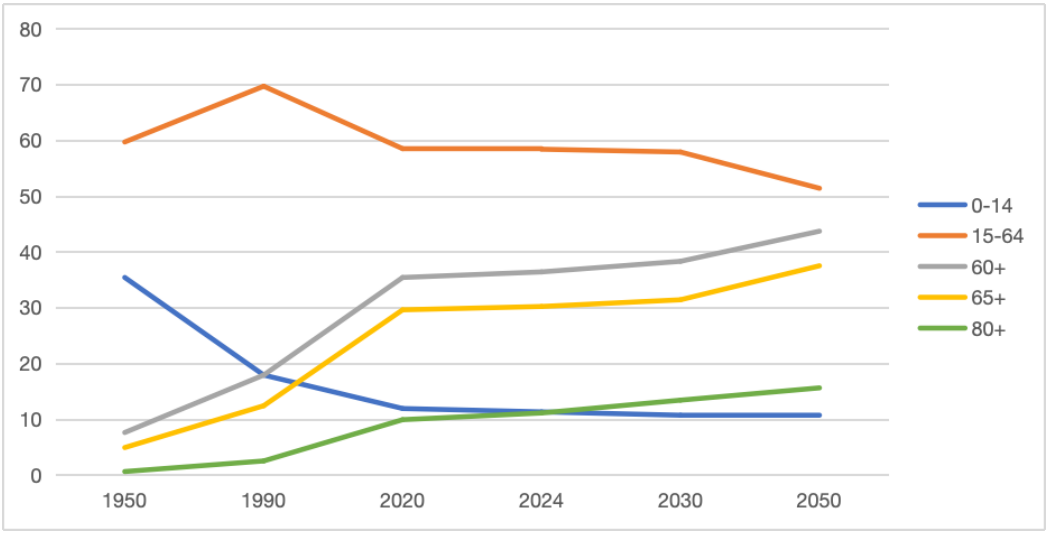

Figure 2. Population by each group
Data source: https://www.population-trends-asiapacific.org/data/JPN
Photo credit: Original

2.3. Gender Difference

Figure 3 depicts the percentage of male and female population by age in Japan for the year 2024. It shows a higher percentage of females in older age groups, starting significantly from age 65

onwards. In the 100+ age group, the percentage of females is 86.8%, while males are only 13.2%, which indicates a much higher number of centenarian females compared to males. As the age decreases, the percentages become more balanced. For the age group 70-74, the percentage of females is 52.6% compared to 47.4% males. In the middle age groups, from 40-44 to 55-59, the distribution is nearly equal, hovering around 50% for both genders. In the youngest age groups, from 0-4 to 25-29, there is a slight majority of males over females, with percentages ranging from 51.2% for males and 48.8% for females in the 30-34 age group, to an even 51% for males and 49% for females in the 25-29 age group. Figure 3 indicates a trend of a higher proportion of females in the elderly population, which is consistent with the generally higher life expectancy of females compared to males.

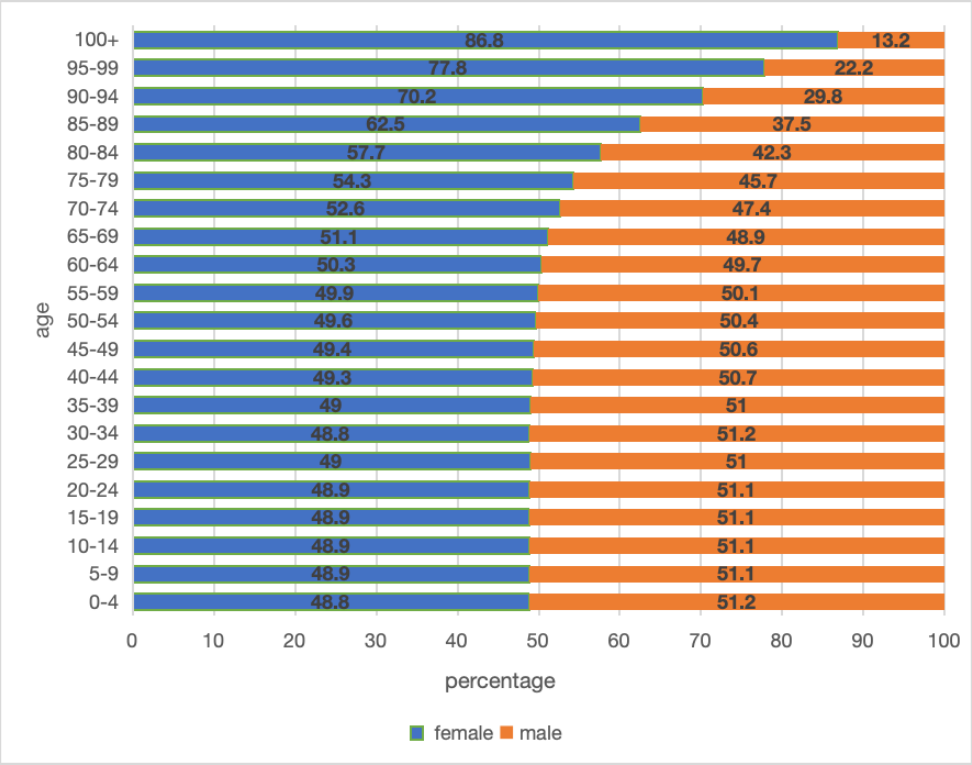

Figure 3. Percentage of male and female population by age

Data source: https://www.population-trends-asiapacific.org/data/JPN
Photo credit: Original

2.4. Region Difference

Figure 4 compares the urban versus rural population in Japan from 1955 to 2023. The urban population has consistently been larger than the rural population throughout the period from 1955 to 2020. Over time, the urban population has shown a significant increase, whereas the rural population has either remained relatively stable or decreased slightly. In the year 2023, it's noted that 93.5% of the population of Japan is urban, equating to 115,292,289 people. The predominance of the urban population in Japan can be explained by several factors. This maybe because limited rural opportunities. There is often limited economic opportunity in rural areas of Japan, which has contributed to urban migration. The overall higher number of people in urban areas mean there are many elderly in urban. The trend shown in the chart is a common characteristic of developed nations where urban areas are the main hubs of economic activity, education, and cultural life.

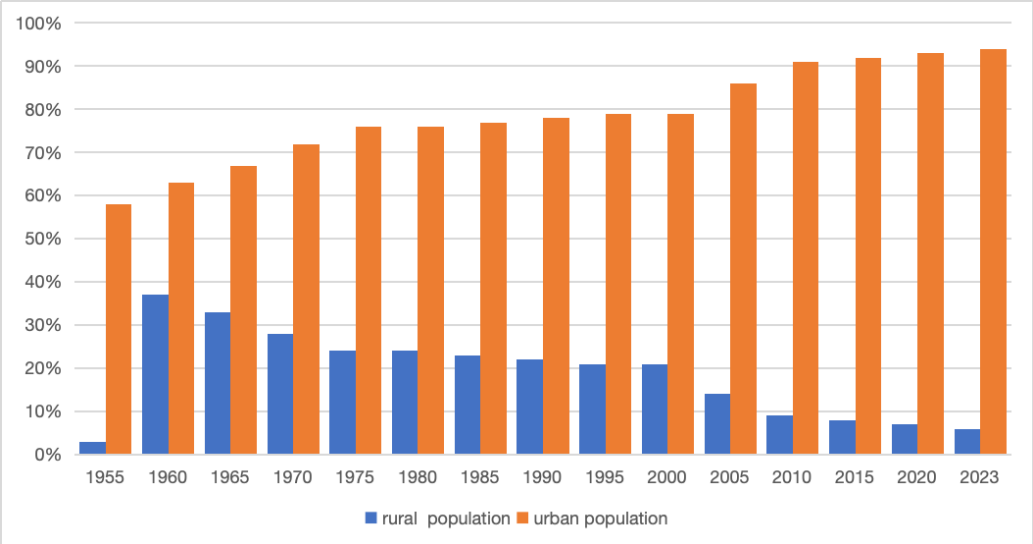

Figure 4. Japan Urban Population

Data source: https://www.worldometers.info/demographics/japan-demographics/
Photo credit: Original

3. Factors Leading to Population Aging

3.1. Lower Birth Rate

3.1.1. The Improvement of Women's Education Level and the Increase of Labor Participation Rate

Figure 5 shows the trend of tertiary education enrollment for 25-34-year-old women from 1997 to 2022. It suggests that an increasing percentage of women in this age group have been attaining tertiary education. The trend line for Japan is rising steadily, starting from around 45% in 1997 and surpassing 65% by 2022. This positive trend shows a significant improvement in educational attainment among young Japanese women, which is indicative of the country's emphasis on education and the increasing role of women in the workforce. Higher education enrollment among women is often associated with lower birth rates. This can be due to several reasons. First, Women are more focused on their career. As more women pursue higher education, they may also prioritize their careers, which can delay childbearing or reduce the number of children they have [2]. Also, women may have economic considerations. The financial burden of education and subsequent employment may lead to decisions to have fewer children, as the costs associated with raising children can be quite high, especially in a developed country like Japan [3]. In addition, Education empowers women with more choices for their lives, which can include the choice to have fewer children [2]. From a policy perspective, this trend can be seen as both a challenge and an opportunity. On one hand, an educated female workforce is crucial for the economic development of a country. On the other hand, it necessitates policies that support work-life balance, such as childcare support and flexible working hours, to encourage higher birth rates. Japan, facing one of the lowest birth rates in the world, is implementing various measures to counter this demographic challenge, recognizing that the sustainability of its social and economic systems depends on reversing the declining birth rate trend.

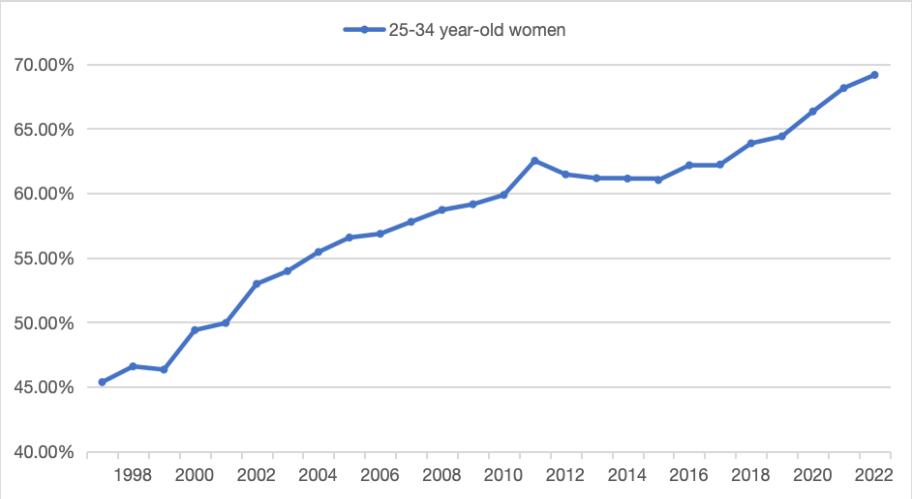

Figure 5. Population with tertiary education

Data source: https://data.oecd.org/eduatt/population-with-tertiary-education.htm
Photo credit: Original

3.2. Increased Average Life

3.2.1. Progress in Medical Technology

The ESCAP indicates that life expectancy in Japan is among the highest in the world, with continuous improvement over the past decades. Contributing factors include a healthcare system that provides access to high-quality medical care, a diet low in saturated fats, and public health initiatives that have led to declines in diseases such as cardiovascular illnesses and certain cancers.

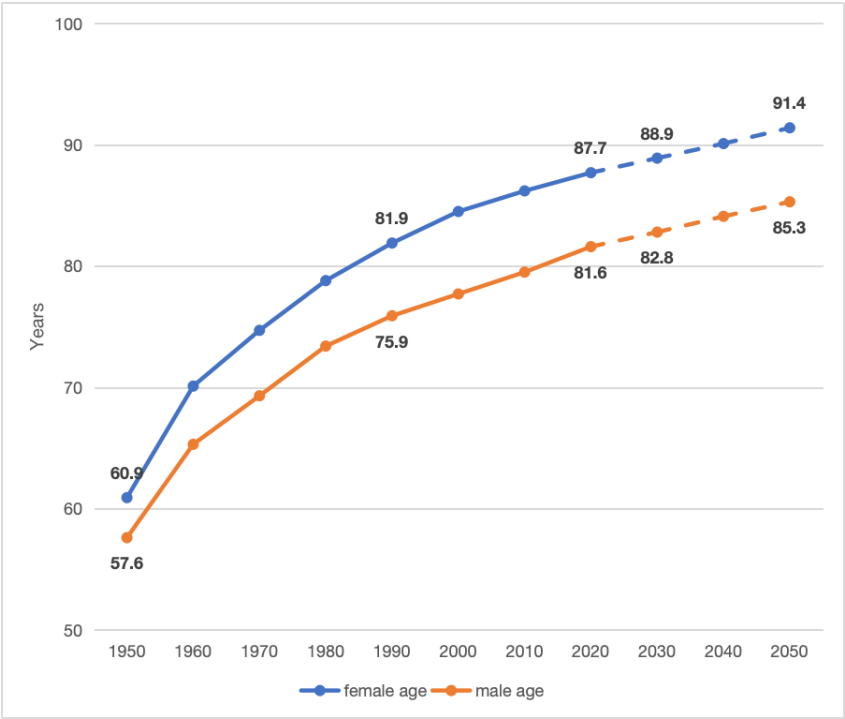

Figure 6. Life expectancy at birth, male and female, 1950-2050

Data source: https://www.population-trends-asiapacific.org/data/JPN
Photo credit: Original

3.2.2. Enhancing Awareness of Disease Prevention

Japan's high life expectancy is a result of long-term public health strategies, including improved healthcare access and lifestyle changes. The decline in cardiovascular and certain cancer-related

mortalities, driven by health education and prevention programs, has contributed significantly to longevity. However, Japan faces future challenges due to an aging population and changing disease patterns, necessitating adaptation in healthcare approaches. Innovative strategies, such as leveraging AI in medical diagnostics and treatment, and tackling lifestyle-related health risks, are key to sustaining life expectancy gains [4].

3.2.3. Improvement of Quality of Life, Including Improvements in Living Environment and Nutrition

The high life expectancy in Japan can also be attributed to dietary factors and health-related behaviors [5]. The traditional Japanese diet, which is high in fish, soybeans, rice, and vegetables, provides beneficial nutrients while being low in saturated fatty acids and sugar. This diet, coupled with a lifestyle that includes regular physical activity and low obesity rates, contributes to lower mortality rates from chronic diseases such as heart disease and certain types of cancer. Moreover, reduced salt intake and improved medical care have decreased the rates of cerebrovascular diseases and stomach cancer. These factors, combined with lower smoking rates, especially among women, and a decrease in infectious diseases, have played a significant role in enhancing the longevity of the Japanese population.

3.3. Economic Factors

3.3.1. Economic Uncertainty and Labor Market Pressure

Economic factors play a significant role in Japan's aging population. The pressure of economic uncertainty and the competitive job market has led many young people to prioritize financial stability and career advancement over getting marry and starting a family. As this paper mentioned before, the high cost of living, coupled with the desire for job security, means that many delay marriage and childbirth. This delay contributes to a lower birth rate, as there is a narrower window for childbearing and a preference for smaller families due to economic constraints. Consequently, as the older population increases and the younger, childbearing population decreases, Japan experiences a demographic shift toward an aging society. Figure 7 shows the number of marriages per 1,000 inhabitants in Japan from 1960 to 2022. The trend is a general decline in the marriage rate over the given period. the declining trend in marriage rates could suggest that societal attitudes towards marriage are changing, or that there are fewer individuals in the prime marriageable age range due to an aging population or other demographic shifts.

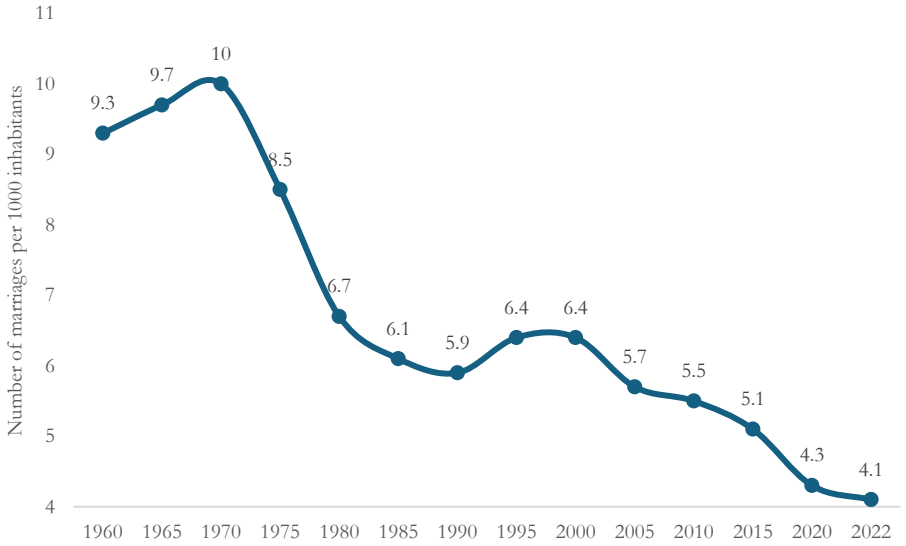

Figure 7. Marriage rate in Japan from 1960 to 2020

Data source: https://www.statista.com/statistics/1249856/japan-marriage-rate/
Photo credit: Original

3.3.2. High Cost of Living

The economic factors contributing to Japan's aging population include the increased financial independence of women, leading to greater career focus and delayed childbearing. Additionally, the challenges of balancing work and child-rearing make it difficult for women to pursue both simultaneously, contributing to a decline in birth rates. These trends, reflective of deeper economic and social changes, have significant implications for Japan's demographic composition and economic future [6]. Also, Japan's comprehensive social security system reduces the elderly's financial dependence on their children, which historically has been a reason for having larger families. With better social security, the need for multiple children to ensure support in old age diminishes, leading to smaller family sizes. This change in the family support structure, along with other factors, contributes to the aging population trend [6].

4. The Economic Impact of Population Aging

4.1. Increase in Pension and Medical Expenses

There is a general trend of increasing social expenditures over time as a percentage of GDP. The most significant increase is observed in pensions in figure 8, which more than triples from 4.20% in 1980 to an estimated 13.40% in 2025 [7]. This is likely a reflection of Japan's aging population and the increased burden on pension systems. Medical care expenditures are also projected to increase, nearly doubling from 4.80% in 1980 to 8.06% in 2025 [7]. This increase could be due to the aging population requiring more medical services, as well as advances in medical technology and the rising cost of healthcare. The IMF article on Japan's aging population examines the fiscal pressures that arise with an increasing number of retirees who rely on pensions and require healthcare [8]. As the elderly population grows, the demand for health services and pensions increases, leading to higher public spending in these areas. This places a strain on government resources and emphasizes the need for sustainable fiscal policies and reforms to support an aging society while maintaining economic stability.

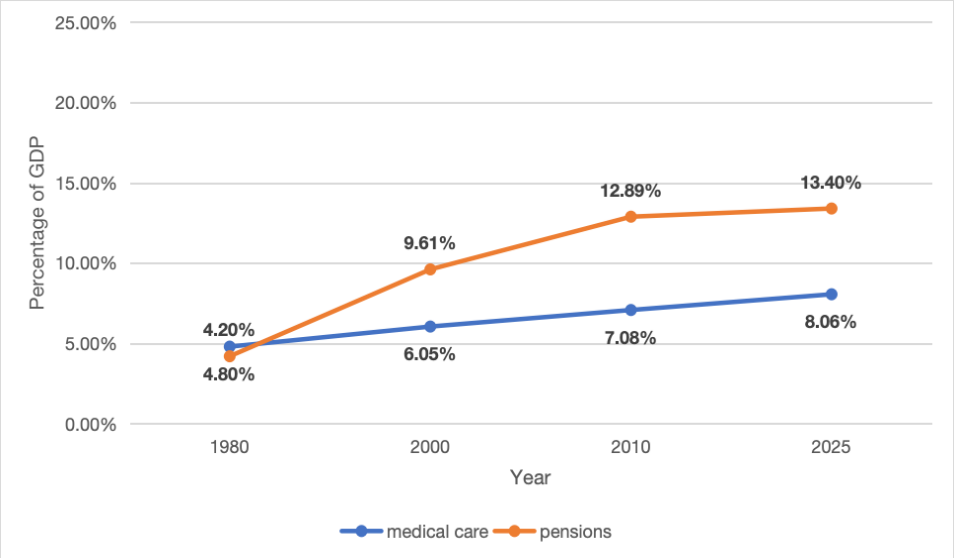

Figure 8. Projected Government Social Expenditure in Japan (% of GDP)

Data source: https://www.elibrary.imf.org/display/book/9780939934683/9780939934683.xml
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4.2. Changes in Labor Force Participation Rates

Figure 9 shows the employment rate of older workers in Japan from 2000 to 2021, separated by gender and age groups: 60-64, 65-69, and 70+. There is a clear upward trend in the employment rate

among older men, especially in the 65-69 and 70+ age groups, indicating a growing participation of older men in the workforce. For women, there is a similar upward trend, although it is less pronounced in the 70+ age bracket. As a larger proportion of the population reaches retirement age, there are fewer people remaining in the working-age group to replace them. At the same time, the labor force participation rate is changing, partly because older individuals are continuing to work past traditional retirement ages. This trend is reflected in the rising employment rates for older workers and is driven by a combination of factors, including financial necessity, improved health and longevity, and policy initiatives aimed at extending working lives to mitigate the impact of a shrinking labor force.

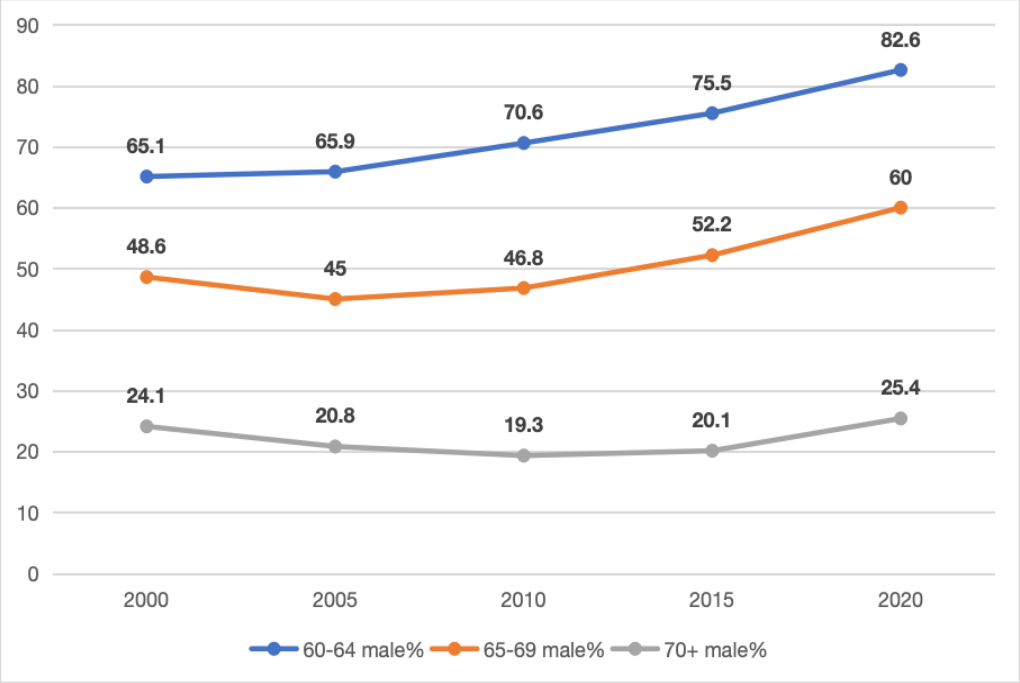

Figure 9. Employment rate of older workers, by gender: Men

Data source: statistics bureau, ministry of internal affairs and communications, labour force survey
Photo credit: Original

The OECD report on "Working Better with Age: Japan" discusses the impact of an aging population on Japan's labor market [9]. It highlights the challenges of a high old-age dependency ratio, which puts pressure on the working-age population and public social expenditure. With the right policies, Japan can address these challenges by encouraging older adults to stay in the workforce, thereby leveraging their knowledge and skills. The report suggests reforming retirement policies, investing in skills development, and ensuring good working conditions to support an aging workforce [9]. The aging population in Japan impacts the economy through various channels. An older population means a smaller workforce, which can slow economic growth due to decreased labor supply and consumption. It can also lead to higher health care and pension costs, increasing the burden on public finances. The productivity and innovation could potentially decline with an older workforce. To address these challenges, Japan needs policies that promote labor force participation among the elderly and women, and that encourage higher fertility rates [10].

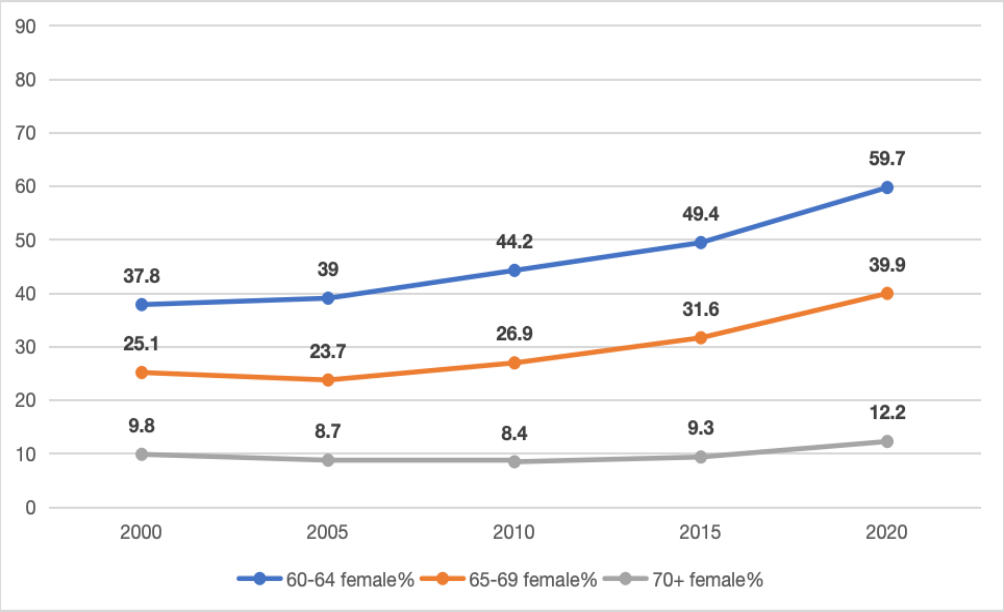

Figure 10. Employment rate of older workers, by gender: Women

Data source: statistics bureau, ministry of internal affairs and communications, labour force survey
Photo credit: Original

5. Policy Suggestions

5.1. Increase Birth Rate

Providing more childcare support and subsidies is centered on alleviating the financial and practical pressures of parenting, which can be a significant barrier to having more children [11]. By offering such support, the government aims to make it easier for parents to balance work and family life, thus promoting a family-friendly environment. This could lead to a boost in birth rates, helping to offset the challenges of an aging population. The subsidies can also ensure that children have access to quality early education, setting a foundation for a well-prepared future workforce.

5.2. Improving the Social Security System

Japan implemented the Long-Term Care Insurance System in response to its rapidly aging population to ensure elderly people could receive the necessary care without overly burdening family members. The system is designed to be user-oriented, offering choice and independence to the elderly in their care. It allows for a diverse range of services provided by various organizations, promoting competition and quality of service [11]. The results of these actions are significant. The number of elderly people with access to insurance for long-term care has increased. The system has also seen a rise in those using in-home, facility, and community-based care services, which has led to a more extensive use of care benefits. The program's sustainability is maintained through periodic reviews and adjustments to premiums and benefits, reflecting the changing demographics and economic conditions. This proactive approach aims to provide focused and efficient services to meet the growing demands of an aging society.

5.3. Promoting Employment for the Elderly

Raising the retirement and pension eligibility ages in Japan is seen as a necessary response to the demographic challenges of an aging population [12]. By encouraging older adults to remain in the workforce longer, the government can mitigate some of the financial pressures on the pension system caused by a shrinking workforce and an increasing number of pension recipients. This strategy can also contribute to maintaining economic productivity despite demographic shifts.

6. Conclusion

This study has navigated the multifaceted landscape of Japan's demographic shifts, urbanization trends, and educational patterns to understand their interplay with the nation's declining marriage rates. The examination began against the backdrop of Japan's rapidly aging population, a phenomenon that has profound implications for social structures and economic vitality.

Through comprehensive analysis, this paper uncovered a notable correlation between the booming urban populace and the diminishing inclination towards marriage. The migration towards urban centers, driven by the pursuit of economic and educational opportunities, has precipitated a change in social norms and individual priorities. In 2023, a staggering 93.5% of Japan's population resided in urban areas, a shift that echoes the global trend of urbanization but also underscores the unique societal evolution within Japan.

Simultaneously, the paper illuminated the surge in tertiary education among women aged 25-34, a positive indication of the country's commitment to gender parity in education and workforce participation. However, this advancement comes with its complexities, as higher educational attainment and career prioritization appear to intersect with lower birth rates and marriage frequencies.

While the healthcare system's success in achieving one of the world's highest life expectancies stands as a testament to Japan's progress, it also adds to the demographic pressures of an aging society.

This paper's exploration, however, is not without its limitations. The research has been constrained by the availability and interpretation of data, and there remains a multitude of variables unaccounted for that could further elucidate the nuances of Japan's demographic conundrum. Future studies could benefit from a more granular analysis of regional variations within Japan, the impact of policy interventions on marriage rates, and the psychological underpinnings driving the societal shift away from traditional family structures.

As Japan continues to solve with these demographic challenges, the findings lay the groundwork for policymakers and leaders to forge strategies that align with the evolving social fabric. It is imperative that future research continues to shed light on this dynamic interplay of factors, paving the way for informed decisions that bolster Japan's resilience in the face of demographic transformation.

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