《研究ノート》

# Silver Democracy and Electoral System: Political Feasibility of Policy Reform Plans in an Aging Japan*

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## I. Introduction

As population aging augments, the costs of providing social security benefits (such as pensions and medical and nursing care) will continue to increase significantly. With the decreasing proportion of the working population, who are also the supporters of the social security system, securing stable revenue resources is an important issue. Most politicians, however, try to avoid discussing such issues that may bring conflicts with the interests of the elderly, especially just before an election. Consequently, many serious problems related to family policies, public pension or medical insurance systems have not been sufficiently discussed. The reason for this can be easily understood if we examine the demographics and composition of voters in Japan.

As the population ages, the ratio of the elderly (aged 65 and above) to the entire electorate continues to increase while that of people in their twenties or thirties continues to decrease. Therefore, given their large voting population, the elderly in Japan have significant political power. Their opinions overwhelmingly dominate those of the younger demographic—this arrangement has been termed a *Silver Democracy*. As a result, the implementation of family policies (childcare allowances—which is imperative for raising birth rates and desired by many young parents) tends to be delayed or postponed. In addition, the reduction of social security benefits, a necessary measure for reducing Japan's vast fiscal deficit, is likely to be difficult to implement as the older demographic is bound to object.

This paper will investigate the political feasibility of policy reform plans recommended based on the simulation results obtained in Okamoto (2020) (see that study for the details of the model settings, adopted assumptions, or the simulation analysis). Okamoto (2020) examined the effects of childcare allowances and public pension reforms on the demography and the economic welfare in the transition from 2014 to 2300, using an extended lifecycle general equilibrium model with endogenous fertility. The simulation results of that study revealed that increases in childcare subsidies or decreases in public pension benefits are potentially *Pareto-improving* from a long-term perspective.

## II. Silver Democracy and Electoral System

According to Okamoto (2020), increasing government childcare subsidies and decreasing public pension benefits are recommended policy reform proposals. Since it is vital whether these desirable policies will be, in reality, implemented in Japan, this study explores the political feasibility of these policy reform plans. In developed

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countries, intergenerational conflicts of interest are currently significant. It is often argued that Japan is the world's leading example of a *Silver Democracy*; in other words, Japan provides generous benefits to older people who enjoy significant political power because they are high in number and they vote at a higher rate than the young. With the main aim of facilitating family policies and raising the national birth rate, the following three election system reform proposals have been developed; the *Demeny, remaining life expectancy,* and *generational* voting systems. We consider the political feasibility of the above desirable policies not only under the current Japanese voting system (in 2014) but also under the three novel election systems.

Next, we explain the three voting system proposals; first, the *Demeny* voting system was devised by demographer Paul Demeny in 1986 (Demeny (1986)). This system provides a political voice for children by allowing parents to vote on their behalf. Once children reach the minimum voting age, their parents would no longer vote on their behalf. Aoki and Vaithianathan (2009) and Vaithianathan *et al*. (2013) discussed the introduction of the *Demeny* voting system in Japan. In our analysis, the *Demeny* voting system means that young people aged 0−19 are given the voting right, which was granted at age 20 in 2014 in Japan. It should be noted that the "current" Japanese voting system in our study means the system at the point of time in 2014, and that the minimum voting age in Japan was decreased to 18 in 2016.

Second, Takeuchi (2012) and Oguro and Ishida (2012) proposed the adoption of a *remaining life expectancy* voting system in Japan. In this system, votes are weighted according to remaining life expectancy, resulting in a higher weighting for young over elderly voters. Our analysis incorporated the essence of this novel idea in the following way. The remaining life expectancy for each age was applied in our analysis, but Table 1 presents the remaining life expectancy only by five ages chopping fine. These values are calculated using data from the Ministry of Health, Labour and Welfare (2015). The abridged life table data for 2014 provides the remaining life expectancy for males and females separately. Our model does not distinguish by gender; therefore, we used male−female average values. For example, one vote by a young person aged 20 in 2014 is weighted as 64.03 votes while one vote by an elderly person aged 85 is weighted as only 7.30 votes.

Third, Ihori and Doi (1998) and Doi (2015) advocated a *generational* election system, which introduces election districts divided by region and by generation. In this system, even if the voting rate of the young generation is low, a young assemblyman—whose position would likely be representative of the young generation—is always elected according to the proportion of this segment of the population. When incorporating the main idea of this scheme into our analysis, the *generational* voting system signifies a 100% voting rate.

Furthermore, some researchers such as Senior Professor Toshihiro Ihori (The National Graduate Institute for Policy Studies: GRIPS) propose a new voting system in which pensioners are deprived of the right to vote; in other words, those aged 65 and above do not have a voting right in this voting system. However, if the elderly give up the right of receiving pension benefits, then they are eligible to vote. Although this voting system is substantially

**Table 1. Remaining life expectancy for each age in Japan**

| Age | | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
|---|---|---|---|---|---|---|---|---|---|
| Remaining life expectancy | | 83.67 | 78.91 | 73.93 | 68.97 | 64.03 | 59.14 | 54.27 | 49.40 |
| 40 | 50 | 55 | 55 | 60 | 65 | 70 | 75 | 80 | 85 |
| 44.56 | 35.07 | 30.48 | 30.48 | 26.02 | 21.74 | 17.65 | 13.77 | 10.25 | 7.30 |

The table shows remaining life expectancy by five ages chopping fine, although the remaining life expectancy for each age is applied in the analysis. Numerical values in the table, which are male-female average values, are calculated using data from the Ministry of Health, Labour and Welfare (2015).

effective for solving the problem related to a *Silver Democracy,* our analysis did not deal with this system; because it is so dramatic and extremely difficult to implement, and thus seems to be unrealistic.

## III. Political Feasibility of Policy Reform Plans

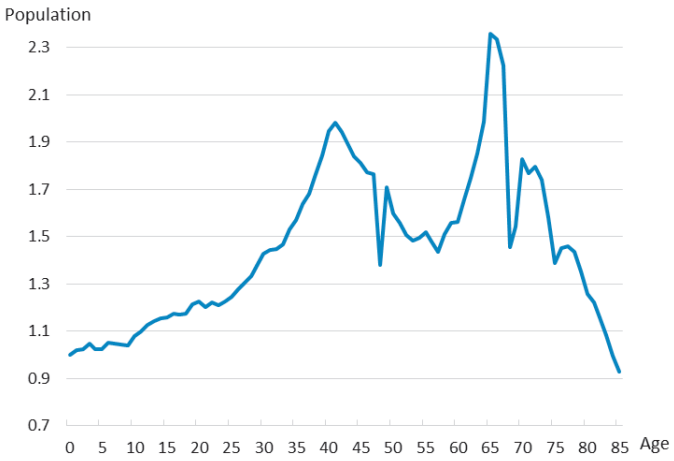
This paper examines the political feasibility of policy reform proposals recommended in Okamoto (2020). With regard to the current Japanese election system (in 2014), the realistic voting rate for each age group is estimated in the following way, using data from the Ministry of Internal Affairs and Communications (2015b). Table 2 presents the voting rate for each age group, which is an average value of the House of Representatives elections and the Upper House elections. The average voting rate for each of the two types of election is derived from actual data from the last nine elections, respectively. This table suggests that the voting rate for young people in their twenties is extremely low and approximately half of that for people in their sixties. Regarding the age group 0–19, we assigned a simple average value between the age groups 20–29 and 30–39. This is because parents vote on behalf of babies, infants, and juveniles and because the voting rate for high school students is not always low according to recent empirical studies. Also, the revised age-population weight shown in Figure 1 is employed as a population weight for the count of votes for each age in the analysis.

First, we assess the political feasibility of the proposed policy of increases in government childcare subsidies. As Figure 2 illustrates, the reform proposal Case B ($\rho = 0$) with no childcare subsidy makes people aged 45 and below

**Table 2. Voting rates used in the analysis for each age**

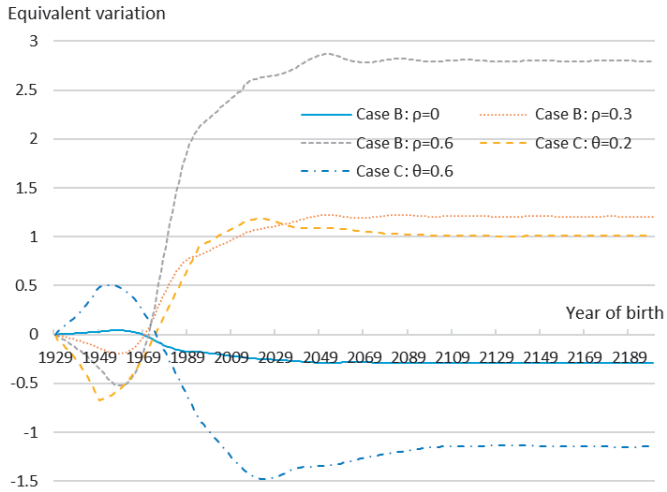
| Age group | 0–19 | 20–29 | 30–39 | 40–49 | 50–59 | 60–69 | 70– | Total |
|---|---|---|---|---|---|---|---|---|
| Voting rates | 46.47% | 38.76% | 54.18% | 63.24% | 69.80% | 76.34% | 65.49% | 59.07% |

The table presents the voting rate for each age group, which is calculated as an average value of the House of Representatives elections and the Upper House elections. The average voting rate for each of the two types of election is derived from the data of the last nine elections, respectively, using data from the Ministry of Internal Affairs and Communications (2015b). The voting rate for the age group 0–19 is a simple average value between the age groups 20–29 and 30–39.




The figure is based on data from the Ministry of Internal Affairs and Communications (2015a). Because the model in Okamoto (2020) assumes individuals live up to 85 years, people aged 86 and above are equally allocated to the age group 65–85 to replicate a realistic dependency ratio (i.e., aging rate) in the model.

**Figure 1. Revised age-population distribution in the 2014 initial steady state**




$\rho$ is the ratio of government childcare subsidies to the whole childrearing cost, and $\theta$ is the pension replacement ratio.

**Figure 2. Changes in the welfare of each generation for five policy reform cases**

(in 2014) worse off, while those aged 46 and above better off (see Okamoto (2020) for the details of the simulation cases and results, and $\rho$ is the ratio of government childcare subsidies to the whole childrearing cost). Conversely, the reform proposal Case B ($\rho = 0.1$) with an increased childcare subsidy makes people aged 45 and below better off but those aged 46 and above worse off. The reform proposals Cases B ($\rho = 0.2, 0.3$) with a more increased childcare subsidy make people aged 44 and below better off but those aged 45 and above worse off. Thus, as the subsidy increases, the turning age becomes younger. It should be noted that the turning age is determined by the balance between merits and demerits, induced by this policy reform; increases in childcare subsidies transfer resources from the older generations to the younger generations, through a higher endogenous tax rate on consumption to finance the subsidies.

Table 3 presents the voting results for Cases B ($\rho = 0.2, 0.3$) in which childcare subsidy ratios are increased from

**Table 3. Voting results for the policy of increases in government childcare subsidies**

| | In Favor | Against | Results |
|---|---|---|---|
| Cases B ($\rho = 0.2, 0.3$) | Age 44 and below | Age 45 and above | |
| Current voting + Actual voting rate | 19.54 | **44.89** | Rejected |
| Demeny voting + Actual voting rate | 29.67 | **44.89** | Rejected |
| Remaining life expectancy voting + Actual voting rate | 975.90 | **1,033.79** | Rejected |
| Demeny + Remaining life expectancy + Actual voting rate | **1,726.56** | 1,033.79 | Approved |
| Current + Generational voting | 38.05 | **64.74** | Rejected |
| Demeny + Generational voting | 59.85 | **64.74** | Rejected |
| Remaining life expectancy + Generational voting | **1,946.67** | 1,490.09 | Approved |
| Demeny + Remaining life expectancy + Generational voting | **3,562.05** | 1,490.09 | Approved |

In Cases B ($\rho = 0.2, 0.3$), the ratios of government childcare subsidies are increased from 0.05945 to 0.2 and 0.3, respectively. Numerical values in the table are the comprehensive number of votes, which take account of the population weight, voting rate, and voting weight of each voting system for each individual aged 0–85. The *Actual voting rate* means a realistic voting rate for each individual. *Demeny voting* signifies that the right to vote is given to young people aged 0–19. *Generational voting* implies a 100% voting rate for each individual. The age shown in the table is the age in the time of 2014 for each generation.

0.05945 to 0.2 and 0.3, respectively. Numerical values in the table are the comprehensive number of votes, which take account of the population weight, voting rate, and voting weight of each voting system for each individual aged 0–85. The *Actual voting rate* in the table means that a realistic voting rate for each individual, presented in Table 2, is applied. *Demeny voting* denotes that the right to vote is given to the young people aged 0–19. *Generational voting* signifies a 100% voting rate. Table 3 shows that these policy proposals, which potentially attain *Pareto improvements* as shown in Okamoto (2020), are not approved for most cases. These proposals are not approved under the current Japanese voting system (in 2014). Even if the *Demeny, remaining life expectancy,* or *generational* voting system is introduced, the similar result is obtained. A conversion to the most dramatic *remaining life expectancy* election system is the most effective; however, only a combination of the *remaining life expectancy* voting system and the *Demeny* or *generational* voting system enables the above recommended policy proposals to be approved. Therefore, this result suggests that the actual implementation of family policies such as childcare allowances is difficult unless the Japanese voting system is dramatically reformed. The introduction of the *remaining life expectancy* voting system is inevitable as a countermeasure for this serious problem; however, only this system is insufficient and it is required to be combined with the *Demeny* or *generational* voting system.

Second, we evaluate the political feasibility of the proposed policy of decreases in public pension benefits. The reform proposal Cases C ($\theta$ = 0, 0.1, 0.2, 0.3) with decreased pension benefits make people aged 39 and below (in 2014) better off, while those aged 40 and above worse off (see Okamoto (2020) for the details of the simulation cases and results, and $\theta$ is the pension replacement ratio). Conversely, the reform proposal Cases C ($\theta$ = 0.5, 0.6) with increased pension benefits make people aged 39 and below worse off but those aged 40 and above better off. As the replacement ratio increases, the turning age becomes younger; decreases in public pension benefits stimulate the household savings, promote the economic growth, and raise the wage rates, resulting in an improvement of the individual utility.

Table 4 presents the voting results for Cases C ($\theta$ = 0, 0.1, 0.2, 0.3) in which the replacement ratios are decreased from 0.4 to 0, 0.1, 0.2, and 0.3, respectively. The table shows that these policy proposals, which potentially achieve *Pareto improvements* as shown in Okamoto (2020), are not approved for almost all cases. These proposals are approved only under a combination of the *remaining life expectancy* and the *Demeny* voting systems. Decreases

**Table 4. Voting results for the policy of decreases in public pension benefits**

| | In Favor | Against | Results |
|---|---|---|---|
| Cases C ($\theta$ = 0, 0.1, 0.2, 0.3) | Age 39 and below | Age 40 and above | |
| Current voting + Actual voting rate | 13.47 | **50.96** | Rejected |
| Demeny voting + Actual voting rate | 23.60 | **50.96** | Rejected |
| Remaining life expectancy voting + Actual voting rate | 716.86 | **1,292.83** | Rejected |
| Demeny + Remaining life expectancy + Actual voting rate | **1,467.52** | 1,292.83 | Approved |
| Current + Generational voting | 28.45 | **74.34** | Rejected |
| Demeny + Generational voting | 50.25 | **74.34** | Rejected |
| Remaining life expectancy + Generational voting | 1,537.02 | **1,899.74** | Rejected |
| Demeny + Remaining life expectancy + Generational voting | **3,152.40** | 1,899.74 | Approved |

In Cases C ($\theta$ = 0, 0.1, 0.2, 0.3), the replacement ratios of public pension benefits are decreased from 0.4 to 0, 0.1, 0.2, and 0.3, respectively. Numerical values in the table are the comprehensive number of votes, which take account of the population weight, voting rate, and voting weight of each voting system for each individual aged 0–85. The *Actual voting rate* means a realistic voting rate for each individual. *Demeny voting* signifies that the right to vote is given to young people aged 0–19. *Generational voting* implies a 100% voting rate for each individual. The age shown in the table is the age in the time of 2014 for each generation.

in pension benefits enhance the overall economic welfare in the long run, but this reform is extremely difficult to execute politically in Japan. The adoption of the *remaining life expectancy* voting system would be the most effective but only in combination with the *Demeny* voting system is the policy proposal approved. Although the generational voting system may be a fairly realistic reform proposal, the magnitude of the effect is not relatively large because Japan has a severely distorted population structure, with elderly voters greatly outnumbering younger voters; Japan's aging rate (i.e., dependency ratio) is the highest level in the world at 26.0% in 2014.

Therefore, although increases in government childcare subsidies and decreases in public pension benefits are both potentially *Pareto-improving,* our analysis suggests that under the current voting system (in 2014) in Japan, it is extremely difficult to actually implement these two recommended policy proposals. Also, although the adoption of the *remaining life expectancy* voting system would be the most effective, this voting system alone is insufficient for solving the problem dubbed a *Silver Democracy* and a combination with another voting system, such as the *Demeny* voting system, is required. Therefore, the result of our analysis reveals that such a dramatic reform is inevitable to overcome the problem related to the aging population in Japan. Moreover, as long as the policy reform cases dealt with in our analysis, the political feasibility of the reform of decreases in public pension benefits is further lower than that of increases in government childcare subsidies. This result may have been mainly caused by the fact that the former would directly make the elderly worse off while the latter indirectly through a tax rate hike on consumption.

## IV. Conclusions

This paper has examined the political feasibility of policy reform plans recommended in Okamoto (2020), namely, the promotion of childcare subsidies and the reduction of pension benefits. Concretely, it has evaluated the political feasibility of the policy proposals under the current Japanese election system as well as the three voting systems: *Demeny, remaining life expectancy,* and *generational*. As a result, the analysis has revealed the two main findings:

1. Both policy reforms (the promotion of childcare subsidies and the reduction of pension benefits) recommended from the perspective of economic welfare, are politically extremely difficult to implement under the current Japanese voting system; because the elderly outnumber the youth in Japan, and the voting rate of the former is also much higher than that of the latter.
2. The analysis shows that the adoption of the remaining life expectancy voting system, which is a dramatic voting reform plan, would be the most effective in solving such a problem. However, the introduction of this novel system is insufficient to overcome the extent of population distortion and low voter rates among the young generation in Japan. The study suggests that a combination of this system with another voting system, such as the *Demeny* voting system, is necessary. Therefore, it shows that there are complex hurdles for solving this problem because Japan has a severely distorted population structure, with few young people and many old people.

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