Policy Attitudes toward the Elderly in an Aging Society: Evidence from a Survey Experiment in Japan

Yesola Kweon
Department of Political Science
Utah State University
yesola.kweon@usu.edu

ByeongHwa Choi
Department of Economics
National Taiwan University
bhchoi@ntu.edu.tw

August 11, 2019

** Working Draft — Please do not circulate or cite without permission of the authors.*

Abstract

Age is being considered increasingly as an important basis of social division in graying societies. The conventional view is that the old and the young have conflicting policy interests and oppose initiatives that benefit competing age groups. In contrast, this study, using a survey experiment in Japan, shows that the perceived salience of the elderly's economic need and reciprocity can increase working-age individuals' support for senior citizens. Nevertheless, the degree to which such reciprocal empathy overrules age-based self-interest depends on individuals' socio-economic conditions. Those who were better off showed increased support only when they perceived the elderly to be reciprocating through labor market participation. Conversely, the economically insecure were generally favorable of support for the elderly. These findings show that age does not substitute economic divide in an aging society; rather, they have an interactive impact. Further, we show the formation of policy preferences is not a unidimensional process.

1 Introduction

Two decades ago, MIT economist Lester Thurow predicted that "[i]n the years ahead, class warfare is apt to be redefined as the young against the old, rather than the poor against the rich (Thurow 1996, 47)." Against the global backdrop of a rapidly aging population, the intergenerational competition hypothesis posits that age is an important source of social division and that it has reshaped welfare politics. According to this view, the elderly are inclined to support expanding pensions and the health care system over expenditure on work-related programs, such as unemployment insurance, or spending that directly benefits the youth, such as education. By contrast, younger people are said to prefer the latter programs over social benefits for senior citizens. This suggests that the young and the old are competing groups with incompatible policy interests (Ansell and Gingrich 2018; Browning 1975; Sinn and Uebelmesser 2002; Sørensen 2013). Therefore, as the number of senior citizens continues to increase, the implication is that the divide between these two age groups will only expand over time.

While much of the research on population aging approaches this issue as a demographic trend, it is important to emphasize that population aging is not merely an increase in the number of older citizens; it is a socio-economic transformation wherein this demographic change generates a new class—namely, elderly workers. In countries like Japan, where the growing number of elderly citizens has become a critical social issue, the cost of maintaining the welfare state is becoming increasingly untenable, resulting in cutbacks to pensions, increases in the minimum age to access benefits, and the application of stricter conditionalities for receiving support (Bussolo et al. 2015; Oshio et al. 2018a; The Economist 2018). Consequently, retirees are falling into poverty in growing numbers, and they are being forced to return to work, often having to adapt to low-paid temporary or part-time jobs (Oshio et al. 2018b).

By taking into account the socio-economic ramifications of population aging, this paper identifies multiple mechanisms that shape the formation of policy attitudes toward others. In addition to self-interest, this article shows that altruism and empathy can influence policy attitudes, enabling intergroup policy support. Which mechanism will be activated, however, depends on the

socio-economic conditions in which individuals are situated and their perception of others in need. To identify the various conditions in which policy attitudes toward the elderly are formed, we employed data from an original survey experiment conducted in Japan—a prototypical case of a rapidly graying society. In line with the conventional understanding, we found that the elderly were more likely than working-age individuals to support government aid to senior citizens in Japan. Opposition to state support for the elderly was particularly strong among younger people with secure employment and advanced labor skills. This is the group of people who are most likely to contribute to the welfare state with little gain. Yet the age effect was mitigated when individuals were presented with framings emphasizing the issue of poverty among the elderly. However, for economically secure youth, it was only when the elderly poor were presented as workers taking responsibility for their economic situation by participating in the labor market that we observed a positive attitudinal change.

The findings of this research have several important implications not only for the study of population aging but also for research on policy attitudes in general. First, the results of this study show that when we consider the impact of population aging on policy attitudes, besides a mere increase in the number of senior citizens, we should consider the socio-economic ramifications. In addition, the survey experiment demonstrated that policy attitudes toward other social group members are not simply determined by self-interest but also by reciprocal altruism. If potential beneficiaries are perceived to be sharing the burden by participating in the workforce, the lines of opposition fade and intergroup support can be generated. Finally, our findings indicate that one mechanism does not explain policy attitudes. Individuals are affected by different mechanisms in the formation of policy attitudes depending on their socio-economic status. Thus, unlike the conventional understanding of the political effect of population aging, this research shows that age does not substitute an economic divide as a new social cleavage in an aging society; rather, age and economic status have an interactive effect on policy preferences.

2 Population Aging and Policy Preferences

The world is rapidly aging. The share of people aged 65 and above relative to those aged 15 to 64 in the 28 countries comprising the European Union is about 30%, and it is projected that this ratio will increase in the years to come as decreasing fertility rates and increasing life expectancy continue to shape demographics (EUROSTAT 2018). The acceleration of population aging has exacerbated labor scarcity and increased the burden on government welfare efforts in advanced industrial countries. In this context, the intergenerational competition hypothesis suggests that individuals' policy preferences are increasingly formed by age-based self-interest. The elderly and the youth are at different stages of a life course—childbirth, retirement, unemployment—and, therefore, have different welfare needs. Each group seeks to increase social expenditure on programs that directly benefit their age group at the cost of the other. Working-age individuals will support labor market programs that provide employee protection or education for children. By contrast, since older people often do not have younger children and are retired (or close to retirement), they are less concerned with these programs. Instead, this group demands more pension benefits and generous health care subsidies (Ansell and Gingrich 2018; Sinn and Uebelmesser 2002; Sørensen 2013). For these reasons, senior citizens and working-age people, unless situated in certain institutional contexts, are often understood to be competing groups mutually vying for scarce resources.[1]

In aging societies, this view implies that the age-based conflict will intensify. Population aging puts a strain on the social security system. As the population ages, the burden of financing pension benefits falls more or less equally on all generations (in tax financed pension systems) or heavily on fewer young shoulders (in pay-as-you-go systems). At the same time, as the younger generation's proportion continues to decrease, the current young generation expects to receive fewer benefits when they reach the age of retirement. Consequently, the young are likely to support a reduction in benefits for those currently drawing on support (Razin and Sadka 2007).

[1] Anderson and Lynch (2007), for instance, show that when neocorporatist decision-making structures in organized unions are present, relatively aged populations can lead to greater support for pension retrenchment.

There is rather weak evidence supporting the existence of a relationship between aging and policy preferences (see Hess et al. 2017). While the aging effect might be considerable, the degree to which a corresponding age cleavage is translated into political preferences differs by policy arena and country characteristics. On the one hand, some research shows that when it comes to support for old age-related policies, such as pensions, young non-beneficiaries might nevertheless support those programs in anticipation of their own post-retirement life (Svallfors 2008). On the other hand, age-based policy preferences are considerable when it comes to education spending (Busemeyer et al. 2009). Variation within a policy arena exists across countries as well. The age cleavage is salient in all policy arenas in countries like the United States and France, but it is less salient in shaping policy preferences in Italy and West Germany (Busemeyer et al. 2009). In addition to characteristics pertaining to policy arenas and country contexts, other research shows that personal experience of intergenerational solidarity within family dampens age-based policy interests (Goerres and Tepe 2010).

Given the mixed evidence regarding the relationship between age and policy preferences, our first hypothesis for empirical testing was the intergenerational competition hypothesis.

Hypothesis 1 *Support for government aid to the elderly increases with age.*

Although recent findings provide a more nuanced understanding of the policy preference formation, few studies directly challenge the intergenerational competition hypothesis or the premise that materially oriented self-interest is the main driver of policy attitudes.[2] Even for studies suggesting that younger people do support policies related to the elderly, the mechanism behind such support is still motivated by prospective self-interest—that is, that individuals will benefit from the policies in the future. In contrast to such a view, concern for others can also motivate intergroup policy support.

However, contrary to the aforementioned studies, recent studies indicate that altruism and empathy that are not motivated by material well-being maximization, but are often conditional, shape public attitudes (Rueda 2017). Moreover, the formation of policy attitudes is not a unidimensional

[2] An important exception is Goerres and Tepe (2010).

process. Rather, different mechanisms can come into effect depending on the type of policy, characteristics of potential beneficiaries and contributors, and perceived fairness (Cavaille and Trump 2015; Rueda 2017). Building on this line of literature, in the following section, we develop a set of hypotheses concerning how individuals' socio-economic status and perceived economic need and reciprocity of the elderly in combination influence policy attitudes toward the elderly.

3 Perceived Salience of Elderly Poverty and Reciprocal Altruism

A major economic change that has been brought forth by aging populations is the issue of elderly poverty and the increased number of seniors returning to the labor market. Research on advanced industrial and aging economies, such as Japan, the United States, and Western European countries, shows that the elderly tend to be increasingly vulnerable to falling into poverty over a prolonged period of retirement. As societies age, household composition changes and more elderly people live alone. This means that older retirees and younger working-age people are less likely to share their incomes. Elderly people become increasingly reliant on pensions as their main source of income. In the meantime, a growing demand from the elderly population for certain goods and services, such as health care, puts pressure on the prices of these programs, affecting consumption levels and, therefore, poverty rates (Bussolo et al. 2015). Although the elderly poverty rate is relatively low in many advanced industrial countries, this rate is rapidly increasing in a growing number of countries, and worsening when market volatility grows (Yen 2018). The elderly poverty rate has already outgrown the national average poverty rate in countries like Japan, the United States, Switzerland, Sweden, and Australia. Moreover, in South Korea, almost half of the senior population is living in poverty.

Austerity-oriented policy reforms have exacerbated the issue of elderly poverty. Since the early 1990s, many advanced industrial economies have undergone pension reforms out of concern for the fiscal sustainability of a rapidly graying population. Though variation exists across countries, these

reforms generally have led to cuts in generosity, increased individual contributions, the adoption of a range of conditionalities, and a shift toward private pensions. Many countries have also raised the statutory retirement age to encourage older workers to remain in the workforce longer and contribute more to the pension system (OECD 2009; Steiner 2017; Zaidi et al. 2006).

Increased economic precarity and reduced public support mean that more elderly citizens are forced to return to the labor market. According to a U.S. Bureau of Labor Statistics report, for instance, the labor force participation rate for older workers has been rising since the late 1990s. Between 1977 and 2007, the employment of workers 65 and over doubled, compared to a much smaller increase of 59% for total employment. The number of employed men aged 65 and over rose by 75%. The employment of aged women increased even more—by 147%.[3] Similarly, in Germany, starting in the early 2000s, the employment rate of people 60-65 years of age doubled, reaching more than 50% by 2014 (Steiner 2017). In addition to increased pressure on senior citizens to return to the workforce, studies show that the earnings of workers aged 65 and older have long been below those of all other workers (The U.S. Bureau of Labor Statistics 2008). When firms are pressured by policy mandates to continue the employment of their elderly workers, those workers' wages are cut to reduce the firm's financial burden (Kondo 2016).

Does the salience of the economic need of the elderly increase youth support for public policy for senior citizens? Several psychological studies demonstrate that intergroup relations are affected by the subjective perceptions of others and altruism. In the study by Vescio et al. (2003), when participants were presented with an interview segment where an African American interviewee discussed the difficulties that he had experienced because of his membership in a negatively stereotyped group, intergroup attitudes tended to improve regardless of stereotypicality. Furthermore, on welfare preferences, previous studies reveal that level of need is among the most important criteria for perceived welfare deservingness. In other words, people are willing to offer more support for those in greater need (Cook 1979; van Oorschot 2000). These studies suggest that the perception of others' adverse experiences can arouse a sense of empathy toward them. In line with these

[3]This figure does not reflect the aging of the baby boomer population (born between 1946 and 1964) because, in 2007, baby boomers had not yet reached the age of 65.

findings, we predicted that when the issue of old age poverty is highlighted, the perceived welfare deservingness of senior citizens would increase. Consequently, support for the elderly, particularly among the young, would increase.

Hypothesis 2 *As the perceived salience of elderly poverty increases, support for the elderly among working-age individuals is likely to increase. Thus, age has little impact on individuals' support for the elderly.*

Although the perceived economic need of others can arouse empathy, it is rarely unconditional. The degree to which individuals are willing to help others is often contingent on social affinity or reciprocity (Kristov et al. 1992; Moene and Wallerstein 2001; Shayo 2009). In countries like Japan, which have high ethnic and racial homogeneity, reciprocity can be a critical factor. When ranking the perceived welfare deservingness of different social groups, the unemployed tend to be subordinated to the disabled or the working poor. Those who do not participate in the workforce are viewed as not making a sufficient effort to assert control over their circumstances. Therefore, welfare support for this group is considered to be unfair (Larsen 2008; van Oorschot 2000).

Reciprocity plays an even more important role in aging societies. Increasing life expectancy and declining fertility rates increase the burden of care for the elderly on working-age people. Even when younger people do not have to directly care for seniors domestically, the increased tax revenue directed toward the elderly can reduce expenditures on child support, education, or labor market programs. In the meantime, low fertility rates mean that the younger generation's support for the elderly is not likely to be remunerated when they reach their own retirement (for instance, see Razin and Sadka 2007). When there is a clear boundary between those who pay and those who receive, younger people's perception of unfairness is likely to be stronger, which increases their hostility toward the elderly. On the contrary, when elderly people make social contributions by participating in the labor force even after retirement, it eases the fiscal burden of the young by reducing costs for health care and pensions (Hess et al. 2017; Lain and Vickerstaff 2014) and weakens the sense of personal grievance. Therefore, the reciprocity of the elderly becomes crucial in determining younger people's support for senior assistance. We predicted that younger people's

support for such programs would increase when the elderly poor are described as laborers participating in the labor market even after reaching retirement age. By contrast, when the elderly are described as general consumers, the issue framing would have a smaller effect, if any.

Hypothesis 3 *Framing poverty among the elderly from a worker's perspective has a stronger and more positive impact on younger people's support for the elderly than framing that emphasizes a general consumer's perspective.*

While the aforementioned hypothesis predicts that conditional empathy motivates one's policy preferences, not everyone can afford altruism. Levels of support for the elderly can differ according to the socio-economic conditions in which younger individuals are situated (Rueda 2017). Nevertheless, previous research has provided mixed evidence on *how* individual attitudes are moderated by their socio-economic conditions. One may predict that economically insecure individuals are more likely to support the elderly as these individuals are likely to rely on state support when they retire. In this view, prospective self-interest drives insecure individuals' support for government aid to the elderly. By contrast, others may argue for a retrospective policy preference. Given the current economic precarity that these individuals are experiencing, they are less likely to support government aid to the elderly because state resources could be spent on improving their own economic well-being (Levitt and List 2007).

Similarly, for economically secure individuals, two competing hypotheses can be suggested. One may argue that economically secure individuals can afford altruism. Rueda (2017) shows that altruism is more relevant to the rich. Those who are better off are less likely to be affected by material conditions and are, therefore, better able to enjoy the moral benefits of altruism. According to this view, their support for government assistance to the elderly will be high regardless of their economic need and reciprocity. By contrast, given that these individuals contribute to the welfare state most but gain little, they can be very sensitive to reciprocity of welfare recipients. Economically secure individuals are likely to want their money to be spent on the most "deserving" people, who do not fully rely on tax money when they are capable of working. Following this logic, one may

predict that support for government assistance to the elderly among the better-offs will increase only when the perceived reciprocity and economic need of senior citizens are high.

We tested the aforementioned competing arguments by examining the following two hypotheses.

Hypothesis 4a *Economically insecure younger people are more likely than economically secure younger people to believe that the government should increase its support for the elderly.*

Hypothesis 4b *Support for the elderly is more likely to increase among economically secure young people when perceived economic need and reciprocity are high.*

4 Brief Overview of Japan's Graying Population

After winning a snap election in October 2017, Prime Minister Shinzo Abe described Japan's rapidly aging population as "the biggest challenge" for his administration's economic policy as it attempted to manage the country's recovery from deflation. He further stressed that "[t]he problem is progressing by the minute, and we cannot afford waiting around (Independent 2017)." Indeed, Japan is one of most rapidly graying societies in the world. There are 400,000 more deaths than births each year, and life expectancy is the highest in the world at 84 years (The Economist 2018). As of 2017, the old age dependency ratio is about 45%—much higher than that of other comparable advanced economies, such as the United States (23%) and Germany (33%) (The World Bank 2019). Social security spending—mostly concentrated on pensions, medical, and care for the elderly—has been steadily rising as a result, occupying about 55% of the government's total non-interest spending (Kashiwase et al. 2012). Faced with a mounting welfare burden and an acute labor shortage, the Abe administration is debating enacting a series of reforms including the admission of 345,000 foreign workers over five years, encouragement of female employment, and increase in the retirement age for civil servants beyond 65.

Abe is not the first Japanese leader to tackle issues related to the growing elderly population. The government has instituted several social security reforms since the 1980s with repeated rounds

of benefit adjustments and tax increases. The first reduction in overall spending for pension programs occurred in the 1985 reform. Subsequent reforms have similarly been aimed at improving the financial balance of the programs by further downsizing benefits. Meanwhile, the age of eligibility has been repeatedly raised. In 1957, for instance, male workers could begin to draw benefits at 55 years of age. This was increased to 60 in 1973. In 2001, the age of eligibility for flat-rate benefits was set to begin rising in 2013 by one year every three years in order to reach 65 years in 2025 (Oshio et al. 2018a). These reforms extended to the firm level as well. Beginning with those who turned 60 in April 2006, employers were to take at least one of three measures: raise the mandatory retirement age to the pension eligibility age, abolish mandatory retirement, or set up a formal rule for employment extension or reemployment (Kondo 2016).

These reforms have resulted in increased incentives for the elderly to work. However, they have also led to greater vulnerability. This is the case even when all other macro-economic conditions are controlled for (Oshio et al. 2018a). Among senior citizens, the poverty rate is 20%, which is above the national average (OECD 2019). As of 2017, 23% of those over 65 years of age are employed, constituting a much larger share of the labor force than in other affluent countries. The proportion of elderly part-time workers has been increasing with particular rapidity (Oshio et al. 2018b; The Economist 2018). Moreover, increasing poverty and economic precarity among the elderly has been accompanied by serious social consequences, such as poverty-driven "silver crimes."[4]

Simultaneously, younger workers are facing unique economic challenges. With a historically low unemployment rate and strong overseas demand, the indicators are encouraging, but the country has not fully recovered from economic stagnation. The average wage per worker has not increased in years, freezing domestic consumption. An entire generation of citizens born in the late

[4]Poverty-driven "silver crimes" have steadily increased over the past 20 years. In 1997, individuals over 65 only accounted for roughly one in every 20 convictions. Within 20 years, this figure grew to more than one in five. Shoplifting is overwhelmingly the single most common crime committed by elderly offenders. Many steal foodstuffs worth less than 3,000 yen (about 27 dollars) from a shop they visit regularly (BBC 2019). Owing to the increased costs of incarcerating pensioners, the Ministry of Justice and the Ministry of Labor have sought to offer employment support to recently released prisoners. Yet rates of recidivism remain high. In 2017, about 43% of elderly men behind bars have been convicted six times or more (The Japan Times 2018).

1980s and early 1990s has lived in a broad state of deflation. The foreseeable future for these young workers is divorced from many of the economic benefits that their parents and grandparents enjoyed, such as home or car ownership and stable jobs (Financial Times 2016). Ironically, while Japan faces a serious labor shortage, many workers are employed in various forms of non-standard employment, such as atypical, temporary, or irregular jobs. A low statutory minimum wage and loose employment protection have contributed to a sharp increase in non-standard employment, constituting more than one third of all jobs (Lee 2013, 2016).

As the Japanese case demonstrates, an aging population has severe ramifications that the government must deal with, including changing many long-held policies, which can be difficult to promote without national consensus. The following section examines factors that shape policy attitudes toward senior citizens.

5 A Survey Experiment: Priming on the Salience of Elderly Poverty

We conducted an online survey experiment with a sample of 2,547 citizens in January 2019.[5] Participants were between 20 and 79 years old. The survey was administered by Nikkei Research Incorporated. We adopted a randomized block design for the sampling strategy. This experiment design reduces potential random and systematic differences between the treatment and control groups along chosen pretreatment variables (Horiuchi et al. 2007). Our participants were blocked before randomization so that the distribution of gender, age, and prefecture of residence closely matched the national distribution in the 2017 census.[6]

Participants were divided into three groups—two treatment groups and one control group—and they were primed differently on the salience of elderly poverty. The first treatment group (836 respondents), the *consumer-priming group*, was presented with a vignette describing senior

[5]Prior to this survey, we conducted a pilot survey of 206 individuals in December 2018.

[6]See Appendix A in page A3 for a comparison of the distribution of key demographic attributes between survey respondents and the national population.

citizens' adverse economic conditions from the perspective of general consumers. A vignette is shown below:

> As the nation with the third largest economy in the world, one may assume that poverty in Japan is very rare. However, as the society is rapidly aging, poverty among the post-65 population is rising. As a consequence, **a growing number of seniors cannot afford basic consumer goods and groceries** and are struggling to meet basic economic needs.

For the second treatment group (853 respondents), the *laborer-priming group*, the elderly poverty issue was described from the perspective of workers, emphasizing senior citizens' participation in the workforce even after their retirement:

> As the nation with the third largest economy in the world, one may assume that poverty in Japan does not exist. However, as the society is rapidly aging, poverty among the post-65 population is rising. **A growing number of seniors are taking up low-paying and temporary jobs past their retirement age**, struggling to meet their basic economic needs.

The control group (858 respondents) received no framing. To ensure that the treatment groups were effectively manipulated, we asked two follow-up questions to check participants' reception of the treatment.[7] About 82.2% of participants in the treatment groups answered the questions correctly, demonstrating the effectiveness of the experimental manipulation.

The outcome variable of interest is individual policy attitudes toward the elderly. The post-treatment question was worded as follows:

> How much do you agree or disagree with the following statement: The government should provide a decent standard of living for the old.

Participants could choose from 1 (strongly agree) to 5 (strongly disagree) or 6 (decline to answer).

[7] See Appendix B in page A3 for the wording of manipulation check questions.

6 Analysis Results

For our modeling strategy, we used logistic regression. Our outcome variable was a post-treatment measure of attitude toward government support of the elderly. We converted this variable into a binary measure, coded as 1 if a respondent agreed or strongly agreed that a government should provide a decent standard of living for the elderly and 0 otherwise.[8] We used two treatment variables for priming on the salience of elderly poverty. One treatment described the elderly poor as general consumers, while the other described them as workers. We also added a pre-treatment variable of age to examine the intergenerational competition hypothesis and its interaction with treatment variables. To account for potential within-region heterogeneity, all models used Huber-White robust standard errors clustered according to prefecture (47 prefectures in total).

Since our survey design employed a randomized experiment, we did not include additional covariates in the main analysis.[9] However, our survey included a wide range of questions intended to measure respondents' demographic and socio-economic attributes. For the purpose of a robustness check, we reanalyzed all models including various covariates—gender, education level, occupational industrial sector, household income, perception of macro- and household-economic conditions, left–right ideology, and electoral support for the incumbent party (Liberal Democratic Party). The results are virtually identical to those without covariates, and they are presented in Table 3 in Appendix E in page A5.

6.1 Effects of Issue Framing and Reciprocal Altruism

Table 1 displays the coefficients of the main models. We began with the intergenerational competition hypothesis that senior citizens are more likely than working-age people to support government assistance to the elderly (H1). Model 1 presents the results from a logistic regression

[8]The results from ordered logistic regression remained largely consistent with the findings from logistic regression.

[9]While recent research makes a case against the balance testing of experiment data (for instance, see Mutz et al. 2018), for those who are interested, the distribution of covariates is presented in Appendix C in page A4. The only variable whose difference between the treatment and control groups was statistically significant was household income, though the size of the difference was very small. In our robustness check, we controlled for this variable along with other covariates, and the results remained unchanged.

model on that subsample, in which the dependent variable (support for the elderly) was regressed on respondents' ages. The results are visualized in Figure 1, presenting predicted probabilities of supporting the elderly by age. The graph confirms that the age cleavage exists in Japan, thereby supporting the intergenerational competition hypothesis. Age had a positive impact on individuals' support for the elderly. Older participants were more likely to be in favor of government assistance to senior citizens. On average, the probability of an individual at 30 years of age supporting greater aid to the elderly was 45%. By contrast, for a 70-year-old individual, this probability was 69% (24% higher).

[Figure 1 Here]

Though this first model demonstrates that age is an important determinant of policy preferences, we argued that an age divide can be moderated by perceived economic need and reciprocity of the elderly. We claimed that the perceived salience of the elderly's economic precarity would induce increased support for seniors particularly among the young (H2). Therefore, we predicted that the positive effect of issue framing would likely be stronger when it emphasizes the worker's perspective (H3). We tested these claims in Models 2 and 3. First, Model 2 estimated the priming effects. Two treatment groups were primed on the elderly poverty issue—one from the perspective of consumers and the other, laborers. The results show positive effects for both framings. When controlling for age, individuals exposed to a vignette highlighting elderly poverty had a greater propensity to think that the government should provide assistance to that group. Though both effects were statistically significant, the size of the impact varied. The laborer-priming effect was almost two times larger than that of the consumer-priming effect, hinting that how elderly poverty is described affects policy attitudes. These findings provide a basic foundation for confirming our first hypothesis.

[Table 1 Here]

How do younger people respond to these two different framings? To answer this question, Model 3 included an interaction term between age and treatments. As it is difficult to accurately

interpret interaction terms by looking only at coefficients, we turn to the graphs presented in Figure 2. The figure displays the predicted probabilities of support for the elderly by age and treatment group with 95% confidence intervals. Figure 2(a) exhibits these probabilities for individuals at age 30, (b) age 50, and (c) age 70. Again, confirming the conventional argument, in general, older participants were more in favor of government support for the elderly. Nevertheless, there was a diverse impact of treatments for different age groups. First, individuals aged 30 in the control group, on average, had a 45% probability of supporting the elderly. This probability increased to 48% for individuals of the same age in the consumer-priming group, although the difference between the two groups was not statistically significant. By contrast, the predicted probability of 30-year-old individuals in the laborer-priming group supporting the elderly was 55%—10% higher than the control group. The difference between the labor-priming and control groups was statistically significant at the level of 0.10.

Figure 2(b) shows a similar pattern among 50-year-old individuals. Fifty-year-olds in the control group, on average, had a 57% probability of supporting spending on the elderly. This probability increased to 62% for those in the consumer-priming group, and to 65% for those in the laborer-priming group. Overall, the results show about a 10% difference between the first and third groups. Again, only the difference between the control and laborer-priming groups was statistically significant at the 0.05 level. According to Figure 2(c), while support for the elderly was generally higher for the 70-year-old group, the treatment effect was the weakest. Although there was a moderate difference between probabilities in the two treatment groups, their probabilities were not significantly different from the probability of the control group.

[Figure 2 Here]

These results reveal two important findings. Confirming our second hypothesis (H2), the increased salience of elderly poverty enhanced support for the elderly particularly among the younger individuals. The priming effects were not significant for senior citizens. Working-age individuals' policy attitudes were more responsive to the salience of elderly poverty. In particular, the probability of a 50-year-old individual in the laborer-priming group supporting the elderly was compatible

to that of a 70-year-old individual in the control group. However, the framing of the issue mattered. In accordance with our third hypothesis (H3), the effect of consumer-priming was weak and insignificant, while the effect of laborer-priming was larger and significant. Thus, the working-age group was more likely to be supportive of the elderly when they perceived seniors as reciprocating through labor market participation.

6.2 Heterogeneous Effects by Socio-economic Status

As we discussed in the theory section, support for the elderly among the young differ according to socio-economic status. Table 2 displays the coefficients from the models that examined heterogeneous priming effects by different employment status and labor skills. Since we were interested in who was more likely to exhibit favorable attitudes toward the elderly and who was more responsive to perceived reciprocity among younger people, our analysis only included working-age people and the effect of laborer-priming. The results are depicted in Figures 3 and 4. First, Figure 3 shows the predicted probabilities of supporting the elderly by employment status. In general, those with part-time jobs or the unemployed (market outsiders) had a higher level of support of the elderly, and emphasis on elderly poverty from a worker's perspective did not increase their level of support. This finding supports the argument that market outsiders tend to have a prospective view. Since they are likely to benefit from state support for the elderly when they retire, they are favorable toward government assistance to the elderly (H4a). A positive impact of issue framing was mostly driven by the behavior of those with secure employment. Those with full-time jobs (market insiders) in the laborer-priming group were more likely than those in the control group to support government assistance for the elderly. Younger people with job security in the control group had a lower level of support for the elderly. However, the predicted probability increased by more than 10% for those in the labor-priming group.

[Table 2 Here]

When we examined the conditioning effect of labor skills, another measure of economic secu-

rity, we identified similar patterns. Figure 4 presents the predicted probabilities of supporting the elderly by different labor skills. We measured labor skills by education levels. Those with a junior high school education or below were coded as low-skill laborers, while others were coded as high-skill laborers. The figure shows that individuals with advanced labor skills in the laborer-priming group had about a 10% higher probability of supporting the elderly than those in the control group. The difference, again, was statistically significant. Conversely, there was no significant difference between those with low skills in the control and laborer-priming groups.

[Figure 3 Here]

[Figure 4 Here]

These findings confirm our fourth hypothesis that individuals with an economic advantage would be more likely to subscribe to reciprocal altruism and would be more responsive to issue framing that emphasizes the economic need and reciprocity of the elderly. By contrast, the disadvantaged within the labor market would be supportive of government aid to the elderly regardless of the issue framing. These results suggest that people's policy attitudes are motivated by different mechanisms depending on their socio-economic status. Both self-oriented and other-regarding concerns affect individuals' policy preferences, but to varying degrees contingent on their economic status.

We also examined the conditioning effect of household income. The findings are presented in Figure 7 in Appendix G in page A8. Unlike labor skills and employment status, the effect of income was much weaker and statistically insignificant. This indicates that labor-market related concerns are more important determinants of heterogeneous priming effects than income level. As many studies show, it might be the case that in post-industrial countries, employment types and labor skills are better predictors of economic security than income is (Rehm 2016; Rehm et al. 2012).

7 Conclusion

This paper examined various conditions in which policy attitudes toward the elderly are formed. By emphasizing age-based policy conflict, many studies have predicted that the young and the old will have different policy preferences and that this divide will only deepen as the population grays. Although recent research provides a more nuanced understanding of the relationship between aging and the formation of policy attitudes, few studies have questioned the central role of self-interest. While acknowledging the importance of self-interest, we claim that multiple mechanisms can motivate people's behavior depending on their socio-economic stance. In addition, the perceived salience of other individuals' economic needs and reciprocity can arouse altruistic attitudes. That is, younger people's support for the old is likely to increase, and this positive attitudinal change will be larger when older people are perceived to be reciprocating socially by participating in the workforce and when younger individuals have economic security. When the economic needs of the elderly are not emphasized, and when the elderly are viewed as not feeling responsible for meeting their own needs, younger people's support for the old remains low. This is particularly true for economically secure younger individuals. Conversely, for economically precarious and insecure individuals, prospective self-interest mainly drives their policy attitudes. We demonstrate these points via the results of a survey experiment in Japan.

Our findings carry important implications. First, studies on population aging emphasize age as a new source of social divide, replacing the existing economic divide. By contrast, we demonstrated that while age remains an important factor, policy attitudes are still influenced by the economic status of individuals in a rapidly aging society. In this sense, age does not substitute economic divide; rather, they have an interactive impact. Second, recent literature on social cleavages shows that in the face of deindustrialization and globalization, various social cleavages have newly emerged (Kweon 2018; Rehm 2009; Rueda 2007). As societies are divided by heterogeneous social cleavages, intergroup support seems to be increasingly far from reach as many predict that policy conflicts will intensify (Emmenegger 2015; Marx 2014). Responding to this view, our study shows that intergroup policy attitudes are more complex: both material maximization and

conditional altruism influence policy preferences, and this, to a limited extent, enables intergroup solidarity. Finally, previous studies have shown that understanding that potential beneficiaries are not social welfare free-riders is important for inducing empathetic policy attitudes toward others. Through a survey experiment, our study further shows that perceived reciprocity can be induced by issue framing. This provides important policy implications. When government actors implement necessary social policies that disproportionally benefit a specific group, to garner broad public support, rhetoric that emphasizes the policy target's social contribution can be crucial.

References

Anderson, K. M. and Lynch, J. (2007). Reconsidering seniority bias: Aging, internal institutions, and union support for pension reform. *Comparative Politics*, 39(2):189–208.

Ansell, B. and Gingrich, J. (2018). The political economy of secular stagnation. Paper Presented at the 2018 American Political Science Association conference, August 30 - September 2, 2018, Boston, MA. https://www.democratic-anxieties.eu/wordpress/wp-content/uploads/2018/05/Sec_Stag_28_5_18_Anxieties.pdf. Accessed 2019-03-07.

BBC (2019). Why some Japanese pensioners want to go to jail. January 31st, 2019. https://www.bbc.com/news/stories-47033704 Accessed March 01, 2019.

Browning, E. K. (1975). Why the social insurance budget is too large in a democracy. *Economic Inquiry*, 13(3):373–388.

Busemeyer, M. R., Goerres, A., and Weschle, S. (2009). Attitudes towards redistributive spending in an era of demographic ageing: The rival pressures from age and income in 14 OECD countries. *Journal of European Social Policy*, 19(3):195–212.

Bussolo, M., Koettle, J., and Sinnott, E. (2015). Golden aging: Prospects for healthy, active, and prosperous aging in europe and central asia. Europe and Central Asia Studies, World Bank Group, Washington D.C.

Cavaille, C. and Trump, K.-S. (2015). The two facets of social policy preferences. *Journal of Politics*, 77(1):146–160.

Cook, F. (1979). *Who Should Be Helped: Public Support for Social Services*. Sage Publications, Beverly Hills, CA.

Emmenegger, P. (2015). Labour market disadvantage, political orientation and voting: How adverse labour market experiences translate into electoral behaviour. *Socio-Economic Review*, 13(2):189–213.

EUROSTAT (2018). Population structure and ageing. statistics explained. https://ec.europa.eu/eurostat/statistics-explained/index.php/Population_structure_and_ageing. Accessed 2018-11-13.

Financial Times (2016). Japan: Deflated generation. January 13th, 2016. https://www.ft.com/content/1b24264e-b9d8-11e5-bf7e-8a339b6f2164 Accessed March 01, 2019.

Goerres, A. and Tepe, M. (2010). Age-based self-interest, intergenerational solidarity and the welfare state: A comparative analysis of older people's attitudes towards public childcare in 12 OECD countries. *European Journal of Political Research*, 49:818–851.

Hess, M., Nauman, E., and Steinkopf, L. (2017). Population ageing, the intergenerational conflict, and active ageing policies — a multilevel study of 27 European countries. *Population Ageing*, 10:11–23.

Horiuchi, Y., Imai, K., and Taniguchi, N. (2007). Designing and analyzing randomized experiments: Application to a japanese election survey experiment. *American Journal of Political Science*, 51(3):669–687.

Independent (2017). What does Shinzo Abe's election win mean for Japan? October 23rd, 2017. https://www.independent.co.uk/news/world/asia/japan-election-result-shinzo-abe-victory-north-korea-ageing-population-th html Accessed February 27, 2019.

Kashiwase, K., Nozaki, M., and Tokuoka, K. (2012). Pension reforms in japan. IMF Working Paper WP/12/285. December, 2012. https://www.imf.org/~/media/Websites/IMF/imported-full-text-pdf/external/pubs/ft/wp/2012/_wp12285.ashx Accessed February 27, 2019.

Kondo, A. (2016). Effects of increased elderly employment on other workers' employment and elderly's earnings in japan. *IZA Journal of Labor Policy*, 5:1–23.

Kristov, L., Lindert, P., and McClelland, R. (1992). Pressure groups and redistribution. *Journal of Public Economics*, 48:135–163.

Kweon, Y. (2018). Types of labor market policy and the eletoral behavior of insecure workers. *Electoral Studies*, 55:1–10.

Lain, D. and Vickerstaff, S. (2014). Working beyond retirement age: Lessons for policy. In Beramendi, P., Häusermann, S., Kitschelt, H., and Kriesi, H., editors, *International Handbook on Ageing and Public Policy*. Edward Elgar Publishing, New York, NY.

Larsen, C. A. (2008). The institutional logic of welfare attitudes: How welfare regimes influence public support. *Comparative Political Studies*, pages 145–168.

Lee, S. (2013). High non-standard employment in the republic of korea and japan: Analyzing policy configurations with fuzzy-set/QCA. *Policy and Society*, 32(4):333–344.

Lee, S. (2016). Institutional legacy of state corporatism in de-industrial labour markets: A comparative study of japan, south korea, and taiwan. *Socio-economic Review*, 14(1):73–95.

Levitt, S. D. and List, J. A. (2007). What do laboratory experiments measuring social preferences reveal about the real world? *Journal of Economic Perspectives*, 21(2):153–174.

Marx, P. (2014). Labour market risks and political preferences: The case of temporary employment. *European Journal of Political Research*, 53(1):136–159.

Moene, K. O. and Wallerstein, M. (2001). Inequality, social insurance, and redistribution. *American Political Science Review*, 95:859–874.

Mutz, D. C., Pemantle, R., and Pham, P. (2018). The perils of balance testing in experimental design: Messy analyses of clean data. *The American Statistician*, page Forthcoming.

OECD (2009). Pensions at a glance: Retirement-income systems in OECD countries. Paris: OECD.

OECD (2019). Poverty rate (indicator). https://data.oecd.org/inequality/poverty-rate.htm. Accessed March 01, 2019.

Oshio, T., Oishi, A. S., and Shimizutani, S. (2018a). Social security programs and the elderly employment in japan. National Bureau of Economic Research Working Paper 25243, November, 2018, Cambridge, MA. https://www.nber.org/papers/w25243. Accessed 2019-02-15.

Oshio, T., Usui, E., and Shimizutani, S. (2018b). Labor force participation of the elderly in japan. NBER Working Paper No. 24614, https://www.nber.org/papers/w24614. Accessed 2019-02-15.

Razin, A. and Sadka, E. (2007). Aging population: The complex effect of fiscal leakages on the politico-economic equilibrium. *European Journal of Political Economy*, 23(2):564–575.

Rehm, P. (2009). Risks and redistribution: An individual-level analysis. *Comparative Political Studies*, 42(7):855–881.

Rehm, P. (2016). *Risk Inequality and Welfare States: Social Policy Preferences, Development, and Dynamics*. Cambridge University Press, Cambridge, UK.

Rehm, P., Hacker, J. S., and Schlesinger, M. (2012). Insecure alliances: Risk, inequality, and support for the welfare state. *American Political Science Review*, 106:386–406.

Rueda, D. (2007). *Social Democracy Inside Out: Partisanship and Labor Market Policy in Industrialized Democracies*. Oxford University Press, Oxford, UK.

Rueda, D. (2017). Food comes first, then morals: Redistribution preferences, parochial altruism, and immigration in western europe. *The Journal of Politics*, 80(1):225–239.

Shayo, M. (2009). A model of social identity with an application to political economy: Nation, class, and redistribution. *American Political Science Review*, 103:147–174.

Sinn, H.-W. and Uebelmesser, S. (2002). Pensions and the path to gerontocracy in germany. *European Journal of Political Economy*, 19(1):153–158.

Sørensen, R. J. (2013). Does aging affect preferences for welfare spending? a study of peoples spending preferences in 22 countries, 1985-2006. *European Journal of Political Economy*, 29:259–271.

Steiner, V. (2017). The labor market for older workers in Germany. *Journal of Labor Market Research*, 50:1–14.

Svallfors, S. (2008). The generational contract in Sweden: Age-specific attitudes to age-related policies. *Policy & Politics*, 36(3):381–396.

The Economist (2018). How Japan's prime minister plans to cope with daunting demography. November 15th, 2018. https://www.economist.com/asia/2018/11/17/how-japans-prime-minister-plans-to-cope-with-daunting-demography Accessed February 27, 2019.

The Japan Times (2018). With recidivism high among the elderly, Japan compiles first white paper of support measures for ex-prisoners. December 21st, 2018. https://www.japantimes.co.jp/news/2018/12/21/national/crime-legal/japan-compiles-first-white-paper-support-measures-former-prison-inmates/#.XHl3eoipE2w Accessed March 01, 2019.

The U.S. Bureau of Labor Statistics (2008). Older Workers, Spotlight on Statistics. July, 2008. https://www.bls.gov/spotlight/2008/older_workers/. Accessed 2019-02-22.

The World Bank (2019). World Bank age dependency ratio, old (% of working-age population). https://data.worldbank.org/indicator/sp.pop.dpnd.ol. Online; accessed April 10, 2019.

Thurow, L. C. (1996). The birth of a revolutionary class. New York Times Magazine, May 19, 46-47.

van Oorschot, W. (2000). Who should get what, and why? on deservingness criteria and the conditionality of solidarity among the public. *Policy & Politics*, 28(1):33–48.

Vescio, T. K., Sechrist, G. B., and Paolucci, M. P. (2003). Perspective taking and prejudice reduction: The mediational role of empathy arousal and situational attributions. *European Journal of Social Psychology*, 33:455–472.

Yen, W.-T. (2018). Pension plans and retirement insecurity. *Ageing International*, 43(4):438–463.

Zaidi, A., Grech, A. G., and Fuchs, M. (2006). Pension policy in EU25 and its possible impact on elderly poverty. CASE paper (116), December 2006, Centre for Analysis of Social Exclusion, London School of Economics and Political Science, London, UK. https://www.researchgate.net/publication/4808516_Pension_Policy_in_EU25_and_its_Possible_Impact_on_Elderly_Poverty. Accessed 2019-03-08.

Tables and Figures

Table 1: Effects on Policy Attitudes toward the Elderly

	(1)	(2)	(3)
Age	0.024***	0.024***	0.024***
	(0.005)	(0.002)	(0.005)
Consumer-priming (CP)		0.180**	0.023
		(0.077)	(0.406)
Laborer-priming (LP)		0.337***	0.521
		(0.088)	(0.352)
CP $\times$ Age			0.003
			(0.008)
LP $\times$ Age			-0.004
			(0.007)
Constant	-0.918***	-0.906***	-0.918***
	(0.228)	(0.150)	(0.228)
Pseudo R-squared	0.022	0.025	0.025
N	858	2246	2246

Note: All models are estimated using logistic regression.

Robust standard errors are clustered by prefecture.

The first model in column (1) includes the control group only.

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: Heterogeneous Priming Effects

	(1)	(2)
Consumer-priming (CP)	0.376**	-0.012
	(0.152)	(0.095)
Laborer-priming (LP)	0.634***	0.372***
	(0.124)	(0.117)
Market outsider	0.637***	
	(0.206)	
CP $\times$ Market outsider	-0.340	
	(0.343)	
LP $\times$ Market outsider	-0.703***	
	(0.247)	
Low skills		0.325**
		(0.137)
CP $\times$ Low skills		0.264
		(0.231)
LP $\times$ Low skills		-0.417
		(0.260)
Constant	-0.108	0.196**
	(0.119)	(0.086)
Pseudo R-squared	0.013	0.007
N	1265	1935

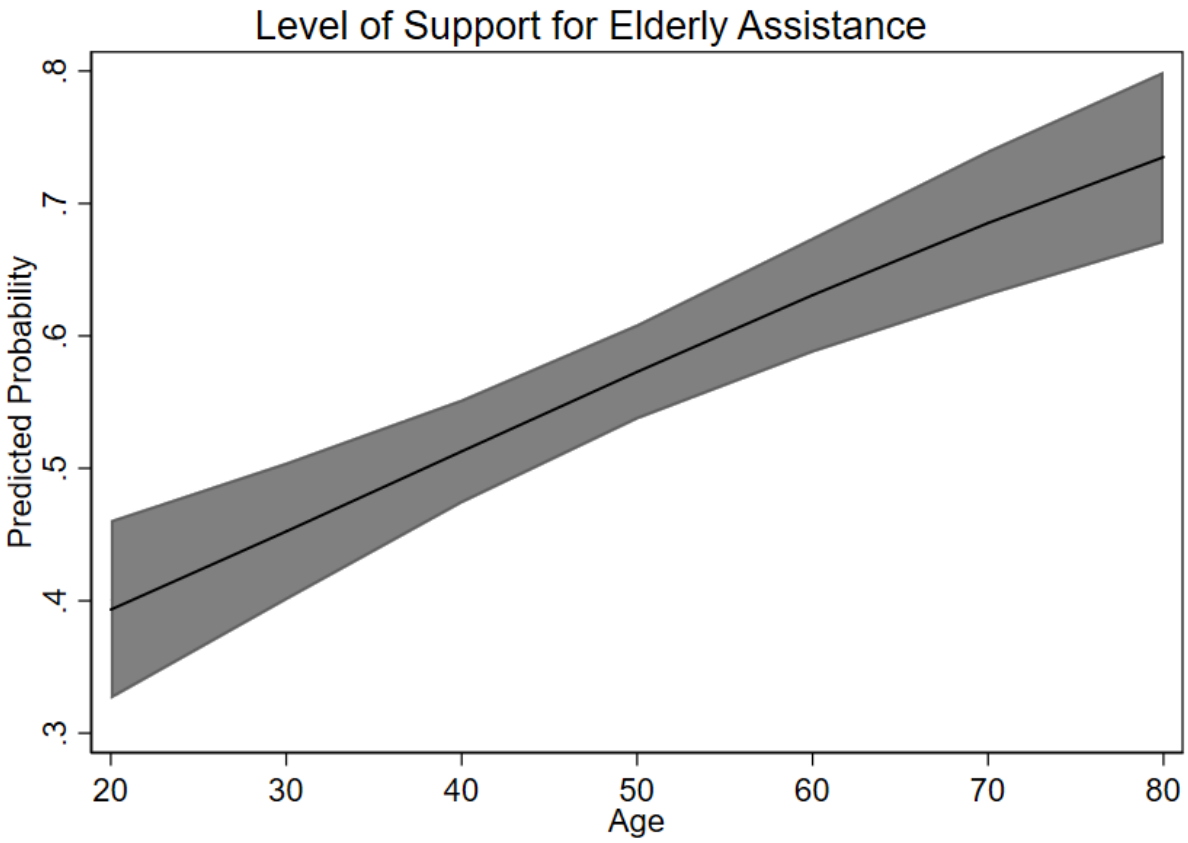
Note: All models are estimated using logistic regression.

Only working-age people (20-64) are included.

Robust standard errors are clustered by prefecture.

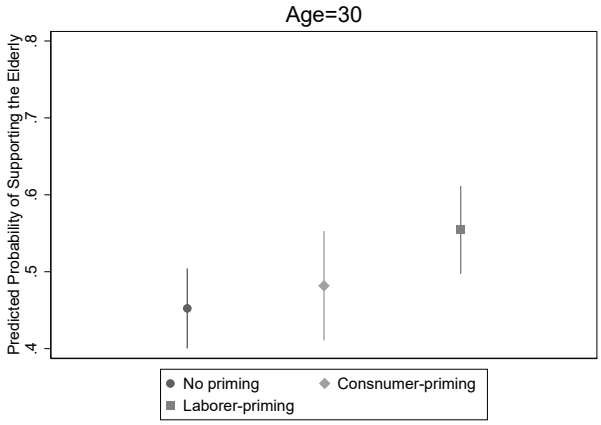
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1: Predicted Probability of Supporting the Elderly by Age



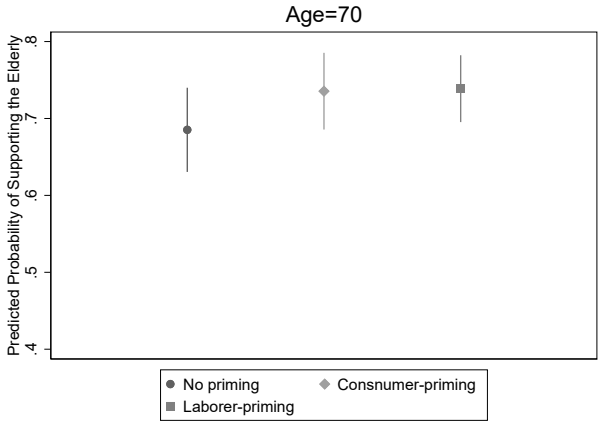
Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 1 of Table 1.

Figure 2: Predicted Probability of Support for the Elderly by Age and Treatment Group



(a) Age=30

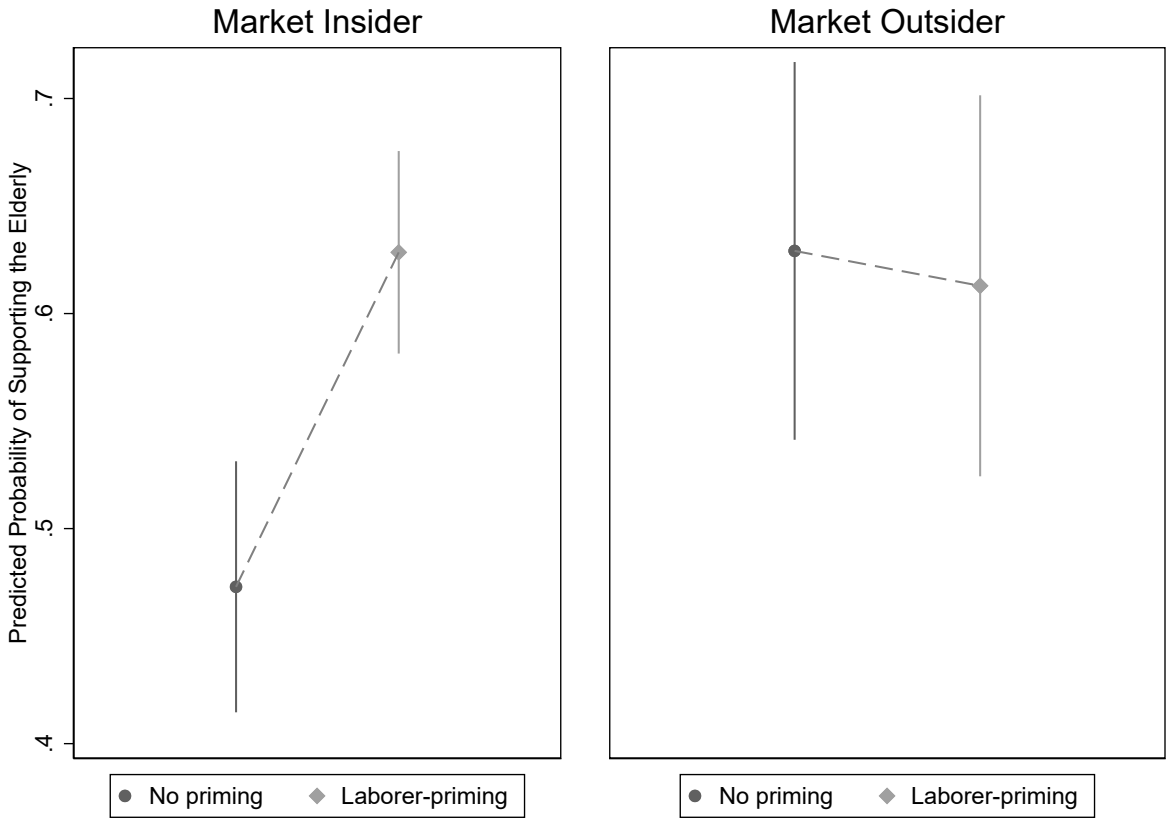
(b) Age=50



(c) Age=70

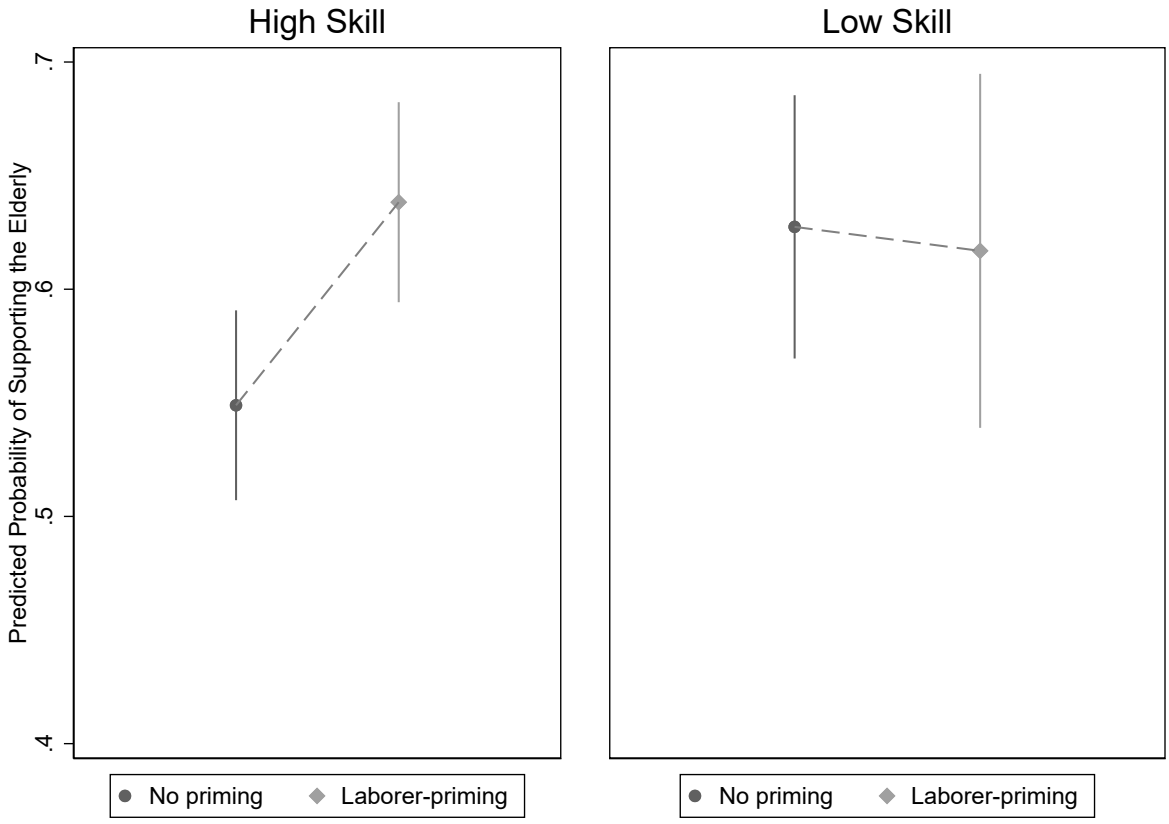
Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 3 of Table 1.

Figure 3: Predicted Probability of Supporting the Elderly by Employment Status



Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 1 of Table 2.

Figure 4: Predicted Probability of Supporting the Elderly by Labor Skill



Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 2 of Table 2.

Appendices/Supplementary Information:
Policy Attitudes toward the Elderly in an Aging Society

Contents

Appendix A Comparison between Target Quota and Collected Data

Target Quota (within +-5%)
(Based on the 2017 Census)

	20-29	30-39	40-49	50-59	60-69	70-79
male	7.0%	8.4%	10.3%	8.1%	9.3%	6.6%
female	6.6%	8.1%	10.0%	8.1%	9.7%	7.9%

Hokkaido/Tohoku	11.3%
Kanto	33.7%
Chubu	18.1%
Kinki	16.9%
Chugoku/Shikoku	8.6%
Kyushu/Okinawa	11.4%

Collected (%)

	20-29	30-39	40-49	50-59	60-69	70-79
male	6.5%	8.7%	9.8%	9.6%	8.9%	7.9%
female	6.1%	7.9%	8.9%	8.4%	10.3%	7.3%

Hokkaido/Tohoku	11.9%
Kanto	31.5%
Chubu	18.4%
Kinki	17.8%
Chugoku/Shikoku	10.4%
Kyushu/Okinawa	10.2%

Collected (#)

	20-29	30-39	40-49	50-59	60-69	70-79
male	130	174	196	191	177	157
female	121	158	177	167	206	146

Hokkaido/Tohoku	238
Kanto	629
Chubu	367
Kinki	355
Chugoku/Shikoku	208
Kyushu/Okinawa	203

Appendix B Manipulation Check Questions

Q13A.Choose the answer based on your reading. Poverty among _____ is rising. (Select one)

Q13B.Choose the answer based on your reading. What specific aspect of the elderly poverty is discussed? (Select one)

Appendix C The Distribution of Key Covariates across Treatment and Control Groups

Covariates	No priming	Priming	Difference	t-value
Age	50.280	50.557	0.277	0.449
	(0.499)	(0.360)	(0.617)	
Left-right ideology	5.295	5.294	-0.001	-0.019
	(0.051)	(0.036)	(0.062)	
Incumbent vote	0.298	0.318	0.020	1.008
	(0.009)	(0.011)	(0.019)	
Female	0.513	0.513	-0.000	-0.004
	(0.017)	(0.012)	(0.021)	
Education	3.766	3.734	-0.032	-0.554
	(0.047)	(0.034)	(0.058)	
Industry	13.838	13.344	-0.494	-1.802
	(0.221)	(0.160)	(0.274)	
Household income	7.066	7.367	0.301	2.300
	(0.107)	(0.076)	(0.131)	
Perceived macro-economy	2.628	2.605	-0.024	-0.738
	(0.027)	(0.018)	0.032	
Perceived household economy	2.594	2.600	0.006	0.173
	(0.028)	(0.020)	(0.034)	

Note: Standard errors in parentheses.

Appendix D Percentage of Respondents Supporting Government Assistance to the Elderly

Group	Age (20-64)	Age (65+)
Consumer-priming	56.06%	70.83%
	(N=361)	(N=136)
Laborer-priming	58.16%	72.07%
	(N=392)	(N=129)
No priming	53.17%	72.63%
	(N=361)	(N=130)

Appendix E Reanalysis of Table 1 with Covariates

Table 3: Effects on Policy Attitudes toward the Elderly — With Covariates

	(1)	(2)	(3)
Age	0.024***	0.024***	0.024***
	(0.005)	(0.003)	(0.005)
Consumer-priming (CP)		0.182**	0.002
		(0.081)	(0.398)
Laborer-priming (LP)		0.372***	0.567*
		(0.084)	(0.342)
CP $\times$ Age			0.004
			(0.008)
LP $\times$ Age			-0.004
			(0.007)
Left-right Ideology	-0.066	-0.092**	-0.092**
	(0.056)	(0.040)	(0.040)
Incumbent Vote	0.044	-0.097	-0.096
	(0.150)	(0.081)	(0.084)
Female	-0.139	-0.096	-0.096
	(0.154)	(0.083)	(0.083)
Education	-0.031	-0.014	-0.014
	(0.048)	(0.028)	(0.028)
Industry	0.007	-0.001	-0.002
	(0.010)	(0.006)	(0.006)
Household Income	-0.065**	-0.043**	-0.043**
	(0.026)	(0.019)	(0.019)
Perceived Macro-economy	0.021	-0.074	-0.072
	(0.090)	(0.062)	(0.061)
Perceived Household Economy	-0.144*	-0.250***	-0.251***
	(0.082)	(0.076)	(0.075)
Constant	0.330	0.879***	0.873**
	(0.594)	(0.313)	(0.413)
Adjusted R-squared	0.037	0.048	0.048
N	858	2246	2246

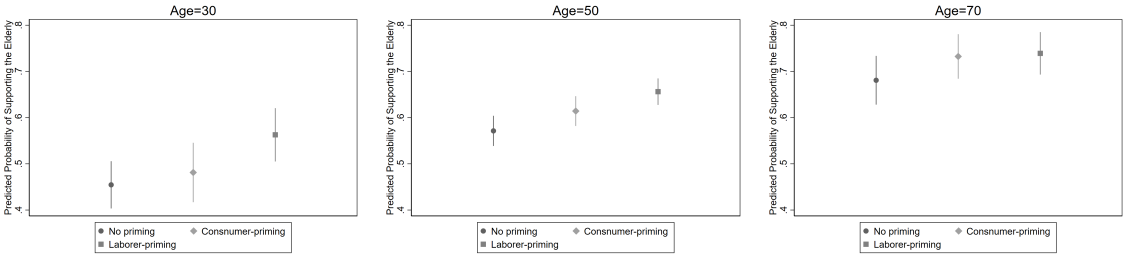
Note: All models are estimated using logistic regression.

Robust standard errors are clustered by prefecture.

The first model in column (1) includes the control group only.

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 5: Predicted Probability of Supporting the Elderly by Age and Treatment Group



(a) Age=30 (b) Age=50 (c) Age=70

Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 3 of Table 3.

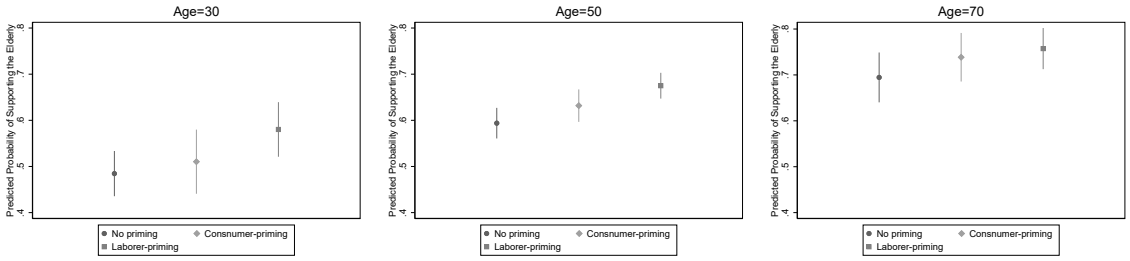
Appendix F Reanalysis of Table 1 without Non-responses

Table 4: Effects on Policy Attitudes toward the Elderly — Without Non-Responses

	(1)	(2)	(3)
Age	0.022***	0.022***	0.022***
	(0.005)	(0.002)	(0.005)
Consumer-priming (CP)		0.159**	0.018
		(0.076)	(0.427)
Laborer-priming (LP)		0.352***	0.437
		(0.083)	(0.369)
CP $\times$ Age			0.003
			(0.008)
LP $\times$ Age			-0.002
			(0.008)
Constant	-0.724***	-0.740***	-0.724***
	(0.224)	(0.138)	(0.224)
Adjusted R-squared	0.018	0.023	0.023
N	826	2172	2172

Note: All models are estimated using logistic regression. Non-responses are excluded.
Robust standard errors are clustered by prefecture.
The first model in column (1) includes the control group only.
Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 6: Predicted Probability of Supporting the Elderly by Age and Treatment Group

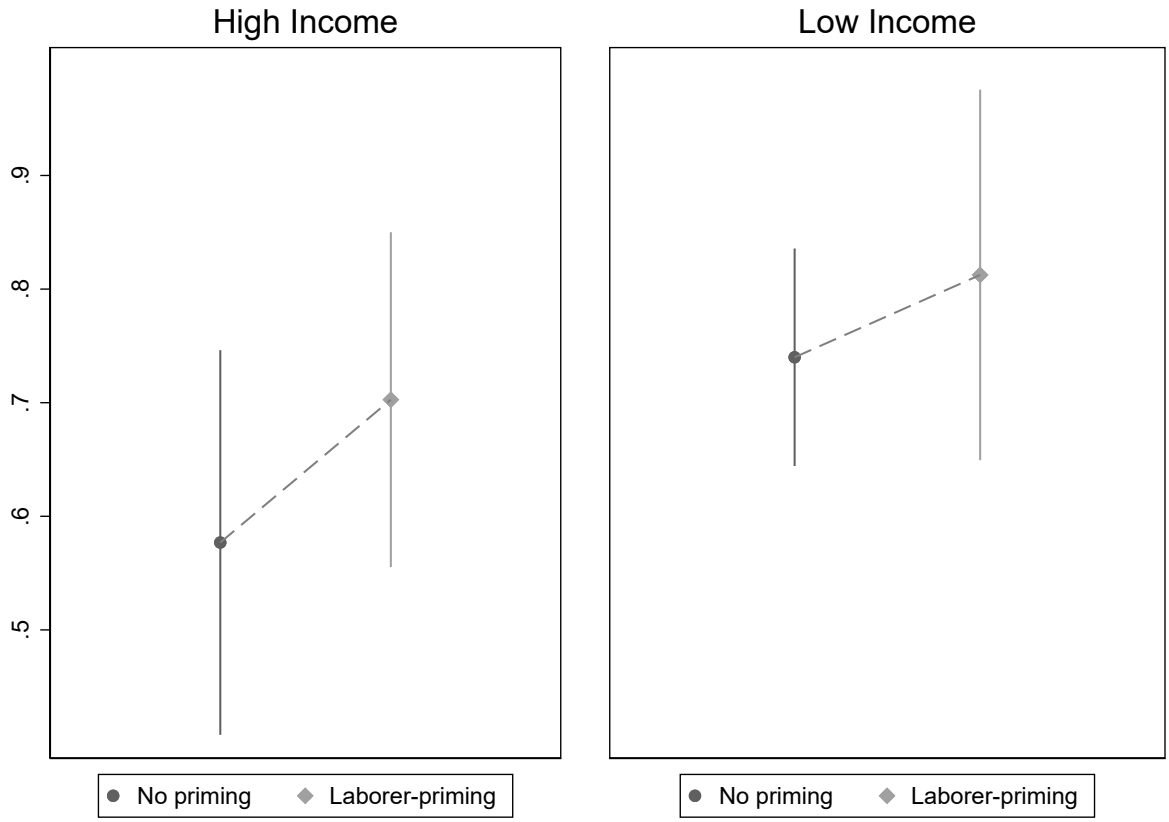


(a) Age=30 (b) Age=50 (c) Age=70

Note: Predicted probabilities and 95% confidence intervals derived from coefficients reported in Model 4 of Table 1.

Appendix G Laborer-Priming Effects by Household Income Level

Figure 7: Predicted Probability of Supporting the Elderly by Household Income



Note: The results of the logistic regression analyses are expressed as predicted probabilities and 95% confidence intervals. Only working-age people (20-64) are included.