THE IMPACT OF BEQUEST MOTIVES ON THE SAVING BEHAVIOR OF THE AGED IN JAPAN

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ABSTRACT

In this paper, we use micro data from the 1996 and 1998 administrations of the Survey on the Financial Asset Choice of Households, conducted every two years since 1988 by the Institute for Posts and Telecommunications Policy of the Ministry of Posts and Telecommunications of the Government of Japan, to analyze (1) the strength and nature of bequest motives in Japan and (2) the impact of bequest motives on the economic behavior of parents and children in Japan (in particular, on the saving (dissaving) behavior of parents and on whether children coreside with, and/or provide nursing care and financial assistance to, their aged parents. Our findings suggest that bequest motives are weak in Japan both absolutely and relative to the U.S. and that bequests are, to a large extent, unintended bequests arising from lifespan uncertainty or a quid pro quo for care and financial assistance received from their children during old age. Moreover, we find that a large proportion of the aged dissave in Japan and that planned bequests have a significant negative impact on the rate of decumulation of the aged. Thus, our findings strongly suggest that the life cycle model is the dominant model of household behavior in Japan and that it is far more applicable in Japan than it is in the U.S.

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1. Introduction

Do people have a bequest motive? If so, what kind of bequest motive do they have, and what impact does it have on their own behavior and on the behavior of their children? These are important questions because they shed light on (1) which model of household behavior is applicable in the real world, (2) whether or not Ricardian equivalence holds in the real world, and (3) the extent to which wealth disparities are passed on from generation to generation. In this paper, we present data from two household surveys conducted by the Institute for Posts and Telecommunications Policy of the Ministry of Public Management, Home Affairs, and Posts and Telecommunications of the Government of Japan on the strength and nature of people’s bequest motives and on what impact bequest motives have on the behavior of the respondents themselves and on the behavior of their children in Japan and the United States.

A number of earlier studies (e.g., Hurd, 1987, and Dekle, 1990) have analyzed bequest motives but they have been hampered by the lack of availability of direct information on bequest motives and have had to use the presence of living children or the number of living children as a proxy for the presence of a bequest motive. Fortunately, the data sources used in our analysis contain direct and detailed information on bequests (inclusive of inter vivos transfers)—e.g., the amounts of bequests respondents received in the past, of bequests respondents expect to receive in the future, and of bequests respondents plan to leave; respondents’ attitudes toward bequests and the division of their bequests among their children, etc., etc.

The organization of this paper is as follows: In section 2, we discuss theoretical considerations; in section 3, we describe the data sources; in section 4, we present data on the strength of the bequest motive; in section 5, we present data on bequest motives and attitudes
toward the division of one’s bequest; in section 6, we analyze the impact of bequest motives on the saving behavior of the aged; in section 7, we analyze the impact of bequest motives on the behavior of bequest recipients (the respondents’ children); and section 8 is a brief concluding section.

2. Theoretical Considerations

In this section, we discuss some theoretical considerations pertaining to bequest motives. In particular, we discuss three models of household behavior used by economists—(1) the life cycle model, (2) the altruism model, and (3) the dynasty model—and show that these models have very different implications for bequest motives and bequest division.

The life cycle model of Modigliani and Brumberg (1954) assumes that people are selfish and that they do not harbor feelings of altruism toward their children. Thus, this model implies that they will not leave any bequests at all or that they will leave only unintended or accidental bequests arising from an uncertain lifespan and/or uncertain medical and long-term care expenses (see Levhari and Mirman (1977), Davies (1981), and Kotlikoff (1989)), selfish or strategic bequests (i.e., bequests that are a quid pro quo for the care and attention their children provide to them during their old age (Bernheim, Shleifer, and Summers (1985) and Cox (1987)), and/or bequests that are left pursuant to an implicit annuity contract between them and their children whereby their children agree to support them financially until they die in exchange for receiving a bequest when they die (Kotlikoff and Spivak (1981)). Moreover, in the latter two cases, the life cycle model implies that people will leave bequests only if their children provide care and/or financial support during old age and that people will leave their entire bequest to the child or children who take care of them and/or provide financial support.
By contrast, the altruism model of Barro (1974) and Becker (1974, 1981, 1991) assumes that people harbor intergenerational altruism toward their children and thus implies that they will leave a bequest to their children regardless of whether their children take care of them and/or provide financial support and that bequests will be compensatory (i.e., that they will give more to the child or children with less earnings capacity and/or greater consumption needs).

Finally, the dynasty model of Chu (1992) assumes that people care about the perpetuation of the family line and/or the family business and thus implies that they will leave a bequest only if their children carry on the family line and/or the family business and that they will leave their entire bequest to the child or children who carry on the family life and/or the family business.

Thus, the three models of household behavior have very different implications regarding bequest motives and bequest division and looking at data on people’s bequest motives and attitudes toward bequest division can shed light on which model of household behavior applies in the real world.

3. Data Sources

In this section, we describe the two data sources we used in our analysis. One data source we used was the Survey on the Financial Asset Choice of Households (Kakei ni okeru Kin’yuu Shisan Sentaku ni kansuru Chousa), which has been conducted every two years since 1988 by the Institute for Posts and Telecommunications Policy of the Ministry of Public Management, Home Affairs, and Posts and Telecommunications of the Government of Japan. This survey (hereafter referred to as the SFACH) surveys about 3,500 to 4,000 randomly selected households from throughout Japan. We used data from the 1996 and 1998 surveys.
The other data source we used is the Comparative Survey on Savings in Japan and the United States (Chochiku ni kansuru Nichibei Hikaku Chousa), which was conducted in 1996 by the same entity. This survey (hereafter referred to as the Japan-U.S. Survey) was conducted roughly simultaneously in the U.S. and Japan surveyed 1,243 Japanese households and 1,508 American households using identical questionnaires.

4. Evidence on the Strength of Bequest Motives

In this section, we present a variety of data pertaining to the strength of people’s bequest motives. First, in section 4.1, we present data on the proportion of respondents who have received bequests from their parents in the past and/or who expect to receive them in the future; in section 4.2, we present data on the proportion of respondents with plans to leave a bequest to their children; and in section 4.3, we present data on bequests as a share of total household wealth.

4.1. Data on the Proportion of Respondents Who Have Received Bequests in the Past or Who Expect to Receive Them in the Future

In this subsection, we present data on the proportion of respondents who have received bequests from their parents in the past and/or who expect to receive them in the future. As can be seen from Table 1, 28.67% of Americans have received bequests from their parents in the past, 28.40% expect to receive them in the future, and 48.88% received bequests from their parents in the past and/or expect to receive them in the future. By contrast, these proportions are 22.35% to 24.16%, 15.98% to 22.10%, and 40.14% to 40.18%, respectively, in Japan, which is somewhat lower than in the United States. Thus, it appears that the bequest motive is somewhat less
important in Japan than it is in the U.S. and that the proportion of respondents who have received bequests from their parents in the past and/or who expect to receive them in the future is only about 40% in Japan.

4.2. Data on the Proportion of Respondents with Plans to Leave Behind a Bequest

In this subsection, we present data on the proportion of respondents with plans to leave a bequest. As can be seen from Table 2, 45.92% of Americans with children plan to make efforts to leave a bequest to their children whereas this proportion is only 25.72% to 28.18% (just over half the U.S. level) in Japan. By contrast, only 2.94% of American respondents with children do not think it is necessary to leave behind a bequest, whereas this proportion is 4.18% to 24.93% in Japan. Thus, it appears that bequest motives are much weaker in Japan than they are in the U.S.

4.3. Data on Bequests as a Share of Household Wealth

In subsections 4.1 and 4.2, we examined data on the proportion of respondents who have received bequests from their parents in the past, who expect to receive them in the future, and/or who plan to leave a bequest themselves, but all of these measures are imperfect measures of the strength of the bequest motive because they do not take account of the amount of bequest(s). We cannot say that bequests are important even if the proportion of respondents receiving or leaving bequests is very high if the amount is very small. Conversely, bequests may be important even if the proportion of respondents leaving or receiving bequests is very low if the amounts are very large. Thus, in this subsection, we examine the quantitative importance of bequests in Japan. First, in subsection 4.3.1, we calculate the ratio of bequests received from one’s parents in the past.
we calculate the ratio of bequests one plans to leave to one’s children to total household wealth.

Since most surveys do not collect direct information on the amount of bequests received or the amount of bequests one plans to leave, previous studies have used a great deal of ingenuity to estimate the amount of bequests. For example, Hayashi (1986), Dekle (1989), and Campbell (1997) calculate the amount of life cycle wealth by subtracting consumption from disposable income in each year and cumulating over the individual’s life to date and calculate the amount of bequest wealth by subtracting life cycle wealth from total household wealth; Barthold and Ito (1992) estimate the amount of taxable bequests from the amount of inheritance taxes paid; Shimono (1991) uses simulation techniques; and Shimono, Otsuka, and Ishikawa (1999) calculate the share of bequests in total household wealth by assuming that the bequests left by individuals who die during the current year equal the average assets of living individuals of the same age. Numerous assumptions must be made in order to employ any of these methods, and direct information on the amount of bequests would make it possible to do a more accurate calculation. Fortunately, the surveys used in this analysis collect direct information on bequests received as well as on bequests one plans to leave.

4.3.1. Data on Bequests Received in the Past or Expected in the Future as a Proportion of Total Household Wealth

First, we present data on the ratio of bequests received in the past and/or expected in the future to total household wealth. According to the 1996 SFACH, the average bequest received of those receiving bequests in the past was 34.205 million yen and the average bequest of all
households was 8.264 million yen. Moreover, the average net worth of all households was 38.195 million yen so the ratio of average bequests received in the past to average household wealth was 21.28% (see Table 3a). Moreover, the average expected bequest of those expecting to receive bequests in the future was 86.877 million yen, the average expected bequest of all households was 13.883 million yen, and the ratio of average expected bequests to average household wealth was 35.75%. Last but not least, the average bequest received in the past and/or expected in the future was 22.147 million yen, and the ratio of average past and/or expected bequests to average household wealth was a full 57.03%.

The questionnaire asks respondents to indicate the present value of bequests received in the past, but if respondents mistakenly wrote down the value of bequests when received, the above figures will be downward biased.

4.3.2. Data on Bequests One Plans to Leave as a Proportion of Total Household Wealth

Next, we estimate the ratio of planned bequests to total household wealth. The same 1996 SFACH also asks respondents how much they plan to leave in bequests to their children when they die. Respondents have presumably written down the value of their assets at death, and thus we first need to discount the future value of bequests to the present. Since we do not know what expectations respondents have about future interest rates, we have considered six cases (interest rates of 0%, 1%, 2%, 3%, 4%, and 5%). The results are shown in Table 3b, and as this table shows, the results are very sensitive to the interest rate assumed. If an interest rate of 0% is assumed, the average planned bequest of all households is a full 32.199 million yen, which comprises a full 82.91% of household net worth. By contrast, if an interest rate of 2% is assumed, the averaged
planned bequest of all households is a full 21.874 million yen, which comprises a full 61.64% of household net worth. Thus, the ratio of planned bequests to total household wealth is remarkably consistent with the ratio of bequests received in the past to total household wealth.

4.3.3. Conclusion regarding the Share of Bequests in Total Household Wealth

Our finding that bequests received in the past comprise about 20 to 30 percent of total household wealth in Japan is roughly consistent with the findings of previous studies (see Horioka (1993) for a literature survey). Our estimate is higher than Hayashi’s (1986) figure of 9.6% or more and Campbell’s (1997) figure of roughly zero, lower than Dekle’s (1989) figure of 48.7% or less (based on the bequest method), Shimono’s (1991) figure of 71.3%, and Shimono, Otsuki, and Ishikawa’s (1999) figure of 41.6% to 57.4%, and roughly comparable to Dekle’s (1999) figure of 3% to 27% based on the life cycle saving method, Barthold and Ito’s (1992) figure of 27.8% to 41.4% or more, and Takayama and Arita’s (1996) figure of 32.7%

Estimates for the U.S. of the share of bequests received in the past are generally less than 20 percent (with the exception of Kotlikoff and Summers (1981)), which suggests that the share of bequests in the U.S. is roughly comparable to that in Japan (see Horioka (1993) for a literature survey). Thus, the proportions of people receiving bequests, expecting to receive bequests, and/or planning to leave bequests are all lower in Japan than they are in the U.S., but the ratio of bequests to household wealth is comparable in the two countries, presumably because the average bequest is much larger in Japan.

However, in order to determine which model of household behavior is more applicable in the real world, it is more important to look at people’s bequest motives and people’s attitudes
toward the division of their bequests than it is to look at the quantitative importance of bequests. It is to these types of data that we turn in the next section.

5. Bequest Motives and Attitudes toward the Division of One’s Bequest

In this section, we present data on people’s bequest motives and on their attitudes toward the division of their bequests.

5.1. Bequest Motives

The surveys we used in our analysis collect direct information on the bequest motives of respondents. In particular, one question asks respondents which of the following six attitudes toward bequests is closest to their own: (1) plan to leave a bequest to my/our child/children no matter what (an altruistic bequest motive), (2) plan to leave a bequest to my/our child/children only if my/our child/children take care of me/us (a selfish or strategic bequest motive), (3) plan to leave a bequest to my/our child/children only if my/our child/children take over the family business (a dynastic bequest motive), (4) do not plan to make any special efforts to leave a bequest to my/our child/children but will leave whatever happens to be left over (an unintended or accidental bequest motive), (5) other, and (6) do not feel it is necessary to leave a bequest to my/our children under any circumstances (the total absence of a bequest motive). The first motive is consistent with the altruism model, the third motive with the dynasty model, and the second, fourth, and sixth motives with the life cycle model. Thus, we can shed light on which model of household behavior applies in the real world by looking at the distribution of respondents by bequest motive.

The results are shown in Table 4, and as this table shows, the dominant bequest motive in
both countries is the unintended or accidental bequest motive, which is consistent with the life cycle model, with 51.14% of Americans and 47.29 to 70.10% of Japanese having this motive. The altruistic bequest motive is a close second in the United States, with a full 42.60% of respondents having this motive, but it is a distant second (third in the case of the 1998 Survey of the Financial Asset Choice of Households) in Japan, with only 19.29 to 19.89% of respondents having this motive. By contrast, the proportion of respondents with no bequest motive whatsoever is much higher in Japan than it is in the U.S. (4.18 to 24.93% vs. 2.94%), and the proportion of respondents with a selfish bequest motive is also higher in Japan than it is in the U.S. (5.00 to 6.78% vs. 3.32%). Finally, the proportion of respondents with a dynastic bequest motive is unavailable in the U.S. and negligible in Japan (1.30 to 1.73%). The proportion of respondents with a bequest motive that is consistent with the life cycle, altruism, and dynasty models is 76.71 to 80.71%, 19.29 to 19.89%, and 1.30 to 1.73%, respectively, in Japan and 57.40%, 42.60%, and not available in the U.S. It thus appears that the life cycle model is the dominant model of household behavior in both countries but that it is far more applicable in Japan than it is in the U.S. and that the altruism model is far more applicable in the U.S. than it is in Japan.

5.2. Attitudes toward Bequest Division

In this subsection, we present data on attitudes toward the division of one’s bequest in the United States and Japan. In the surveys we used in our analysis, respondents are asked which of six attitudes toward bequest division is closest to their own: (1) divide equally, (2) give more or all to the child/children who take care of me/us, (3) give more or all to the child/children who take over the family business, (4) give more or all to the child/children who has less income, (5) give more or
all to the eldest son/daughter even if the eldest son/daughter does not take care of me/us, and (6) other. Attitude (2) is consistent with the life cycle model, attitudes (3) and (5) with the dynasty model, and attitude (4) with the altruism model. Attitude (1) is not, in general, consistent with any model of household behavior, but it is consistent with the altruism model if we assume that the earnings capacities and consumption needs of all of one’s children are roughly equal. Thus, we can shed light on which model of household behavior applies in the real world by looking at the distribution of respondents by attitude toward bequest division.

The results are shown in Table 5, and as this table shows, equal division, which is most consistent with the altruism model, is the dominant attitude toward bequest division in both countries, but this view is much more prevalent in the U.S. than it is in Japan, with 96.28% of Americans but only 48.74 to 56.72% of Japanese holding this view. View (2), which is consistent with the life cycle model, is of only negligible importance in the United States, with only 3.32% of Americans holding this view, but it is of considerable importance in Japan, with 29.04 to 33.72% of Japanese holding this view. Similarly, views (3) and (5), both of which are consistent with the dynasty model, are of only negligible importance in the U.S., with 0.00% and 0.41%, respectively, of Americans holding these views, but they are both of some importance in Japan, with 3.84 to 6.91% and 4.63 to 7.59%, respectively, of Japanese holding these views. Finally, view (4), which is consistent with the altruism model, is of negligible importance in both countries, with only 0.55% of Americans and only 1.02 to 2.36% of Japanese holding this view.

Thus, our results again show that the altruism model is far more applicable in the U.S. than it is in Japan and that the life cycle and dynasty models (especially the former) are far more applicable in Japan than they are in the U.S.
6. The Impact of Bequest Motives on the Saving Behavior of the Aged

In this section, we analyze the saving behavior of the aged in Japan with emphasis on the impact of bequest motives thereon.

6.1. The Data

For the purposes of this analysis, we use the following concepts of saving:

\[ \text{FINA} = \text{financial assets} \]
\[ \text{FINNW} = \text{financial net worth} = \text{FINA} - L \]
\[ \text{REALA} = \text{real assets} \]
\[ W = \text{wealth (net worth)} = \text{FINNW} + \text{REALA} = \text{FINA} + \text{REALA} - L \]

where \( L = \text{liabilities} \)

Table 6 shows the net change in each of these saving concepts during the past year, and as this table shows, (whether they are working or retired) the aged in Japan dissave every saving concept, on average, with the exception of real assets, and the proportion of the aged who dissave is also quite high (one-third or more) (with the exception of the proportion of the aged who dissave in the form of a net increase in liabilities and those who dissave in the form of a net sale of real assets).

Looking first at financial assets, the average amount of dissaving is 279,900 yen, 691,900 yen, and 467,100 yen, respectively, in the case of the working aged, the retired aged, and all aged, the rate of decumulation is 1.24%, 3.22%, and 2.11%, respectively, and the proportion of
households dissaving is 36.02%, 48.51%, and 41.69%, respectively. In the case of financial net worth, the average amount of dissaving is 398,600 yen, 947,900 yen, and 648,100 yen, respectively, in the case of the working aged, the retired aged, and all aged, the rate of decumulation is 1.98%, 4.70%, and 3.21%, respectively, and the proportion of households dissaving is 34.16%, 50.00%, and 41.35%, respectively. Finally, in the case of the broadest saving concept (net worth), the average amount of dissaving is 831,900 yen, 869,200 yen, and 848,800 yen, respectively, in the case of the working aged, the retired aged, and all aged, the rate of decumulation is 1.17%, 1.32%, and 1.23%, respectively, and the proportion of households dissaving is 54.66%, 75.37%, and 64.07%, respectively. Thus, the amount of dissaving, the rate of decumulation, and the proportion of households dissaving are all higher in the case of the retired aged than in the case of the working aged, as expected.

These findings are consistent with the life cycle model, which predicts that the aged (particularly the retired aged) will finance their living expenses by drawing down their previously accumulated saving. Our finding that the Japanese do not draw down their real assets is consistent with casual empiricism and may be due to one or more of the following three factors: (1) land/housing is very expensive and indivisible, (2) the Japanese have a strong preference for continuing to live in their own homes until they die, and (3) land receives highly preferential treatment with respect to property taxes and bequest taxes.

6.2. The Estimation Model

6.2.1. The Basic Model

In the absence of uncertainty regarding one’s lifespan, those with no bequest motive will
want to use up all of their wealth by the end of their lives. Thus, the dissaving function of the retired aged with no bequest motive will be as follows (assuming a zero interest rate for simplicity’s sake):

\[ DS = (1/LE) \times W, \]

where \( DS \) = dissaving
\( W \) = wealth
\( LE \) = life expectancy (remaining years of life)

Dividing this equation through by \( W \) to alleviate the problem of heteroscedasticity yields:

\[ DS/W = 1/LE \]

In other words, the rate of decumulation equals the reciprocal of life expectancy.

6.2.2. The Model with a Child Dummy

Next, we would like to consider the case of those who have a bequest motive. Hurd (1987) and other previous studies use a child dummy as a proxy for having a bequest motive because they have no direct information on bequest motives. Thus, we learn from these previous studies by first adding a child dummy to the model. In other words,
DS = (1/LE)*W*(1 – a*CHILD)

where CHILD is a child dummy that equals 1 if the person has at least one living child and 0 otherwise.

Dividing this equation through by W yields:

DS/W = (1/LE) – a*(1/LE)*CHILD

We tried using actual data on LE and regressing DS/W on 1/LE and (1/LE)*CHILD, and we also tried regressing DS/W on a constant term and CHILD and letting the regression equation estimate 1/LE. If the child dummy is a proxy for bequest motives, a should be positive, and the presence of children should lower the rate of decumulation. More precisely, a should equal the average intended bequest/wealth ratio of households with children.

6.2.3. An Estimation Model with Bequest Dummies

As noted earlier, the survey used in this analysis asks respondents about their bequest motives and thus there is no need to use the child dummy as a proxy for bequest motives. Thus, we next consider an estimation model with bequest motive dummies in lieu of a child dummy. In other words,

DS = (1/LE)*W*(1 – Σ(b(i)*BEQ(i)))
where BEQ(i) is a dummy variable that equals 1 if bequest motive i is applicable and 0 otherwise.

Dividing this equation through by W yields:

\[ DS/W = (1/LE) + (1/LE) \cdot \sum b(i) \cdot BEQ(i), \]

We first introduced five dummy variables corresponding to the first five bequest motives listed in Table 4 with the sixth bequest motive (do not feel it is necessary to leave behind a bequest to my/our children under any circumstances) being the default category, but we were not able to obtain satisfactory results because of the inadequate number of degrees of freedom. Thus, in the end, we used the following two bequest motive dummies with the default category being the same as above:

INTBEQ = an intended bequest motive dummy (equals 1 if the respondent plans to leave a bequest no matter what, if he/she plans to leave a bequest only if his/her children take care of him/her, if he/she plans to leave a bequest only if his/her children take over the family business, or if he/she has another bequest motive and 0 otherwise)

ACCBEQ = an unintended bequest motive dummy (equals 1 if the respondent “does not plan to make any special efforts to leave a bequest to my/our child or children but plans to leave behind whatever happens to be left over” and 0 otherwise)
We tried using actual data on LE and regressing DS/W on 1/LE, (1/LE)*INTBEQ, and (1/LE)*ACCBEQ, and we also tried regressing DS/W on a constant term, INTBEQ, and ACCBEQ and letting the regression equation estimate 1/LE. b(i) should be positive in both cases since those with a bequest motive should show a slower rate of decumulation than those without a bequest motive. More precisely, b(i) should equal the average planned bequest/wealth ratio B/W of those with bequest motive i.

6.2.4. Estimation Model with Planned Bequests

It is far more desirable to take account not only of whether respondents plan to leave a bequest but also of the amount of bequests they plan to leave, and thus we also estimated a model with planned bequests. If there is no uncertainty about one’s date of death, individuals planning to leave a bequest of B yen will want to have B yen left over when they die so they will draw down not their entire wealth W but the amount by which W exceeds B (W – B). Thus, the dissaving function of such individuals will be as follows:

\[ DS = (1/LE) \times (W - B) \]

Dividing this equation through by W yields:

\[ DS/W = (1/LE) - (1/LE) \times B/W \]
As this equation shows, we would expect the rate of decumulation $DS/W$ of those with a bequest motive to be lower than that of those without a bequest motive, with the difference being $(1/LE)B/W$.

We tried using actual data on $LE$ and regressing $DS/W$ on $1/LE$ and $(1/LE)B/W$, and we also tried regressing $DS/W$ on a constant term and $B/W$ and letting the regression equation estimate $1/LE$. If we regress $DS/W$ on $1/LE$ and $(1/L)B/W$, we would expect the coefficient of $1/LE$ to equal 1 and that of $(1/LE)B/W$ to equal $-1$, and if we regress $DS/W$ on a constant term and $B/W$, we would expect the constant term to equal $1/LE$ and the coefficient of $B/W$ to equal $-1/LE$.

6.2.5. Estimation Model with Both Bequest Motive Dummies and Planned Bequests

Finally, we tried estimating a model with bequest motive dummies and planned bequests introduced simultaneously to test for the possibility that the rate of decumulation and/or the impact of planned bequests on the rate of decumulation might vary by bequest motive.

The estimation model is as follows:

$$DS = (1/LE)^*(W – B)*(1 + \sum (c(i)*BEQ(i)))$$

Dividing this equation through by $W$ yields:

$$DS/W = (1/LE) + (1/LE)\sum (c(i) * BEQ(i)) – (1/LE)(B/W)\sum (d(i) * BEQ(i))$$
Because the planned bequest is zero in the case of the default category (do not feel it is necessary to leave behind a bequest under any circumstances), there is no need to include a \((1/LE)\)*(B/W) term.

As in the case of the estimation model with bequest motive dummies only, we used two bequest motive dummies (INTBEQ and ACCBEQ).

We tried using actual data on \(1/LE\) and regressing DS/W on \(1/LE\), \((1/LE)\)*INTBEQ, \((1/LE)\)*ACCBEQ, \((1/LE)\)*(B/W)*INTBEQ, and \((1/LE)\)*(B/W)*ACCBEQ, and we also tried regressing DS/W on a constant term, INTBEQ, ACCBEQ, (B/W)*INTBEQ, and (B/W)*ACCBEQ and letting the regression equation estimate \(1/LE\).

6.3. Dependent Variable

As the dependent variable, we used not only the rate of decumulation of net worth but also the rate of decumulation of financial assets (DSFA/W). The reason is that, as we saw from Table 6, the Japanese appear to decumulate primarily financial assets and to keep their real assets intact.

6.4. The Sample

We tried using the full sample of aged households (defined as households in which the head is 60 years old or older) as well as the subsample of retired aged households. The life cycle model predicts that individuals will finance their living expenses after retirement by drawing down their savings, and thus we would expect to obtain better results for the sample of retired aged households.
6.5. The Definition and Construction of Variables

Fortunately, all of the variables needed for our analysis are available or can be computed from the data in the 1996 SFACH. We calculated LE from the current age of the household head and (in the case of households with a married head) the age of the spouse of the household head. More specifically, we defined LE as the longer of the household head’s life expectancy and the life expectancy of the spouse of the household head. That is,

\[ LE = \max(LE_{\text{HEAD}}, LE_{\text{SPOUSE}}), \]

where \( LE_{\text{HEAD}} \) = the life expectancy of the household head
\( LE_{\text{SPOUSE}} \) = the life expectancy of the spouse of the household head

6.6. Estimation Results

6.6.1. Estimation Model with Child Dummy

The estimation results are shown in Table 7-1, and as can be seen from this table, none of the coefficients are statistically significant when the sample of all aged households is used and also when the sample of retired aged households is used and the saving concept used is net worth. However, when the sample of retired households is used and the saving concept used is financial assets, all of the coefficients are statistically significant, have the expected signs, and are of the appropriate magnitude. Looking at the impact of the presence of children, the decumulation rate of financial assets of retired aged households with children is significantly lower than that of retired
aged households without children. This is presumably because retired aged households with
children wish to leave a portion of their financial assets to their children as bequests. However, the
child dummy is significant in only one out of four cases, and thus it may not be a very good proxy
for bequest motives.

6.6.2. Estimation Model with Bequest Motive Dummies

The estimation results are shown in Table 7-2, and as can be seen from this table, all of the
coefficients except for the coefficient of the unintended bequest motive dummy are statistically
significant, have the expected signs, and are of the appropriate magnitude in all of the variants
except for the variant in which retired aged households are used and the saving concept used is net
worth. Looking at the impact of intended bequests, the rate of decumulation of those planning to
leave intended bequests is significantly lower than that of those not planning to leave any bequests
at all, and in fact, they are accumulating rather than decumulating assets.

6.6.3. Estimation Model with Planned Bequests

The results are shown in Table 7, and as this table shows, the results differ substantially
depending on what sample is used. If the full sample of aged households is used, the results are
somewhat weak: all of the coefficients have the expected signs but are too small in magnitude.
Moreover, the coefficient of 1/LE and the constant term are not statistically significant and the
coefficients of (1/LE)*B/W and B/W are statistically significant at only the 10% level. By contrast,
the results are exceptionally good when the sample of retired aged households is used: all of the
coefficients have the expected signs and are statistically significant. Moreover, virtually all of the
coefficients are of the appropriate magnitude. For example, the coefficient of 1/LE is not statistically different from its expected value of 1, and the coefficient of (1/LE)*B/W is not statistically different from its expected value of −1. The coefficient of the planned bequest term is, as expected, always negative and statistically significant, which means that the larger one’s planned bequest, the lower one’s rate of decumulation.

6.6.4. Estimation Model with Both Bequest Motive Dummies and Planned Bequests

The estimation results are shown in Table 7-4, and as can be seen from this table, the coefficient of both variables pertaining to unintended bequests are not statistically significant, but the interactive term between B/W and INTBEQ is negative and statistically significant in almost all cases, which suggests that planned bequests lower the rate of decumulation only in the case of those with an intended bequest motive.

6.7. Robustness Checks

We checked the robustness of our results by trying various specifications. First, we tried estimating a model in which the rate of decumulation is assumed to be a function of the health status of the household head or the spouse of the household head, but the results were almost identical and the impact of health status was not statistically significant.

We also tried assuming that living expenses decline after one of the two spouses passes away, but again, the results were almost identical.

6.8. Conclusion
As predicted by the life cycle model, retired aged households appear to be dissaving all assets other than their real assets, and planned bequests appear to have a negative and statistically significant impact on the rate of decumulation.

7. The Impact of Bequest Motives on the Behavior of Bequest Recipients

Thus far, we have focused exclusively on the attitudes and behavior of bequest givers (the parents), but in this section we focus on the behavior of bequest recipients (the children). If the children are altruistic, we would expect them to look after and/or provide financial support to their aged parents whether or not they expect to receive a bequest from them and whether or not the receipt of a bequest is conditional on their looking after and/or provide financial support to their parents. By contrast, if the children are selfish, we would expect them to look after and/or provide financial support to their aged parents only if they expect to receive a bequest from them or, more precisely, only if the receipt of the bequest is conditional on their looking after their parents. Thus, we can shed light on whether the children are altruistic or selfish by seeing whether there is any correlation between the parents’ bequest motives and the children’s behavior (in particular, whether or not they look after, and/or provide financial support to, their aged parents). The Survey on the Financial Asset Choice of Households collects direct information on whether or not parents live with or plan to live with their grown children (a good proxy for care received from their children since it is presumably easier for children to provide financial and in-kind assistance and care to their parents if they live together), whether or not parents receive or plan to receive nursing care from their children, and whether or not parents receive or plan to receive financial assistance from their children.
First, Table 8 presents data on the present and future coresidence rates of respondents and their children, broken down by their bequest motive, and as this table shows, the coresidence rate of those who plan to leave a bequest only if his/her child/children take care of him/her is second highest in the case of respondents with a selfish bequest motive (i.e., those who plan to leave a bequest only if their child/children take care of them).

Next, Table 9 presents data on the present and future coresidence rates of respondents and their children, broken down by their attitude toward bequest division, and as this table shows, the coresidence rate is, as expected, highest in the case of those with a selfish attitude toward bequest division (i.e., those who plan to leave more or all of their bequest to the child/children who take care of them).

Next, Tables 10-11 present data on the proportion of respondents who receive or plan to receive nursing case from their children, broken down by their bequest motive (Table 10) and their attitude toward bequest division (Table 11). As these tables show, the care rate is, as expected, highest for those with a selfish bequest motive or a selfish attitude toward bequest division and is lowest for those with no bequest motive.

Finally, Tables 12-13 present data on the proportion of respondents who receive or plan to receive financial assistance from their children, broken down by their bequest motive (Table 12) and their attitude toward bequest division (Table 13). As these tables show, the financial assistance rate is second highest for those with a selfish bequest motive or a selfish attitude toward bequest division.

8. Conclusions
In this paper, we used data from two household surveys conducted by the Institute for Posts and Telecommunications Policy of the Ministry of Public Management, Home Affairs, and Posts and Telecommunications of the Government of Japan to analyze the strength and nature of people’s bequest motives and the impact of bequests on the behavior of parents and children. To summarize the principal findings, our results concerning bequest motives and attitudes toward bequest division suggest that bequest motives are relatively weak in Japan, both absolutely and relative to the U.S., and that bequests in Japan are primarily unintended bequests arising from lifespan uncertainty or selfish bequests that are a quid pro quo for care and financial assistance during old age. Moreover, a substantial proportion of the aged in Japan dissave, and planned bequests have a negative and statistically significant impact on their rate of decumulation. Finally, parents’ bequest motives and attitudes toward bequest division have a strong impact on the coresidence, care, and financial support behavior of their children, suggesting that not only parents but also children are selfish in Japan. Thus, our results suggest that the applicability of the life cycle model is very high in Japan and that its degree of applicability is much higher in Japan than it is in the United States.

Fortunately, our results for both countries are consistent with the results of previous studies. For example, Ohtake (1991), Ohtake and Horioka (1994), Hayashi (1995), and others find that the life cycle model applies and that the altruism model does not apply in the case of Japan, and these findings are fully consistent with our own findings.

Thus, when considered collectively, our results suggest that the selfish life cycle model is the dominant model of household behavior in Japan and that it is far more applicable in Japan than it is in the U.S., which in turn implies that bond-financed tax cuts would be an effective means of
stimulating the Japanese economy and that the danger of wealth inequalities being passed on from
generation to generation is not necessarily all that great.

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References


Review, vol. 77, no. 3 (June), pp. 298-312.


Iwamoto, Yasushi (1993), "Does the Dynasty View Help to Explain Japan's High Saving Rate?" mimeo., Kyoto Institute of Economic Research, Kyoto University, Kyoto, Japan.


