To Avoid or Not to Avoid Inheritance Taxes? That Is the Question for Parents: Empirical Evidence from Japan

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Abstract

This paper examines the behavioral response of households to wealth transfer taxation using household survey data from Japan. The data reveal that relatively few households plan to reallocate the newly taxable amount of wealth to their own consumption or *inter vivos* transfers in response to the recent lowering of the basic deduction of the inheritance tax, largely because of a lack of concern about taxes. This may partly reflect the fact that bequest motives are relatively weak and/or that the majority of saving is for either retirement or precautionary purposes in Japan. However, our estimation results also suggest that parents with an altruistic motive for bequests are more likely to avoid an increase in their children's tax bill by reallocating the newly taxable amount of wealth to *inter vivos* transfers. Parents with an exchange motive for bequests are also found to be responsive to changes in tax policy, but their reaction is heterogeneous: some of them reallocate the newly taxable amount of wealth to their own consumption while others reallocate it to *inter vivos* transfers.

JEL codes: D31; D64; H26; H31

Keywords: bequests; inheritance tax; inter vivos transfers; Japan; precautionary saving

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1. Introduction

It is a stylized fact that wealth is distributed less equally than income or consumption expenditure (Davies and Shorrocks, 2000). According to a recent report of the Organisation for Economic Co-operation and Development (OECD), on average, the wealthiest 10% of households hold half of total wealth, the next 50% hold almost all of the other half, and the least wealthy 40% own little over 3% while their share of total household income is about 20% (OECD, 2015).[2] Household wealth arises primarily from lifecycle saving or from transfers of wealth across generations. The latter can take the form of *inter vivos* transfers that are made while benefactors are alive or bequests that are made at their death.

The last few decades have seen a growing body of literature that examines the relative importance of intergenerational transfers vis-à-vis lifecycle saving as determinants of the level and distribution of wealth. According to the lifecycle saving model pioneered by Modigliani and Brumberg (1954), individuals save (accumulate wealth) during their working years to finance consumption during retirement and dissave during old age. However, because of uncertain lifetimes and precautionary saving for unforeseen income or health shocks, people reduce their saving less after retirement than suggested by the lifecycle hypothesis, and, as a result, a positive amount of wealth is left unconsumed and passed onto the next generation (Davies, 1981; Yaari, 1965).

In addition to those unintended or accidental transfers, some individuals save in order to leave bequests to the next generation. Indeed, it has been pointed out that the extreme upper tail of the wealth distribution cannot be explained by the lifecycle saving hypothesis alone, which suggests the importance of a bequest motive in the wealth accumulation process (e.g., Atkinson, 1971; Oulton, 1976). Kotlikoff and Summers (1981) estimate that private transfers of wealth across generations account for about 80% of current wealth while Modigliani (1988) claims that at least 80% of total wealth is due to lifecycle

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[2] The calculations are based on data for 18 OECD member countries for which comparable data were available (OECD, 2015).

accumulation.[3] Davies and Shorrocks (2000) review the existing work on the relative importance of intergenerational transfers and conclude that a reasonable estimate of their contribution to aggregate wealth is about 35-45%.

It has therefore become widely recognized that intergenerational transfers play an important role in the wealth accumulation process. As such, one way of tackling wealth inequality is to impose a tax on intergenerational transfers. Taxation of such transfers takes various forms, including an estate tax imposed on the total amount of wealth left by the decedent, an inheritance tax imposed on the amount of wealth received by the beneficiary, and a gift tax imposed on *inter vivos* transfers. Recent years have been witnessing growing efforts to analyze household behavioral response to wealth transfer taxes, an area that had received relatively little attention previously. Empirical evidence reveals that while households respond to changes in transfer taxes and try to minimize the tax burden, their responses are relatively limited and households tend to maintain control over their wealth despite the risk of facing greater tax liabilities as a result.[4]

As for theoretical analyses of transfer taxation, the literature suggests that bequest motives play a key role in determining the effect of transfer taxation on household behavior. Both theoretical and empirical work that examines motives behind intergenerational transfers has become extensive over the past few decades. The literature broadly consists of two strands. The first one emphasizes altruistic reasons for intergenerational transfers (Barro, 1974; Becker and Tomes, 1979) while the other suggests exchange or strategic motives (Bernheim, Shleifer and Summers, 1985; Cox, 1987). No consensus has been reached on the nature of bequest motives and it seems more realistic to recognize that different motives for transfers are not mutually exclusive, i.e., that a person may have a mix of different motives and/or that different individuals may have different motives (Kopczuk, 2013).[5]

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[3] The significant discrepancy between these two estimates arises largely from whether household expenditure on durable goods is treated as consumption or saving, whether the accrued interest on the transfers is attributed to lifecycle accumulation or inherited wealth, and whether parental support for dependent children over the age of 18 is treated as consumption or a form of bequests (Modigliani, 1988).

[4] See Kopczuk (2013) for a survey of the literature on the effect of taxes on intergenerational transfers.

[5] See Kopczuk (2013) for a review of the empirical evidence that indicates the mixed bequest motives

Understanding household behavior toward transfer taxation is critical for policy makers as failure to predict household response may prevent them from achieving the intended objective of the tax policy. Nevertheless, empirical work on the effect of transfer taxes on household behavior has so far been based largely on data on the United States (US). It would thus be interesting to see whether the previous findings obtained for the US also hold for other parts of the world. In particular, given that household response to such taxes is likely to depend on bequest motives, different behavioral responses may be observed in other countries where bequest motives differ from those commonly observed or assumed in previous studies on the US.

The main aim of this paper is to extend the literature by examining the case of Japan. To the best of the author's knowledge, this paper is the first attempt to analyze household response to transfer taxation in Japan. Japan offers an interesting case to study as a previous international comparison analysis reveals that the bequest motive is relatively weak in Japan in comparison with that in the US (Horioka, 2014).

The recent revision of inheritance and gift taxes in Japan also provides a unique opportunity to examine the effect of taxation on household transfer behavior. Given that these changes became effective only on January 1, 2015, data are not yet available to analyze how the tax reform has affected the actual behavior of households. However, fortunately, the Survey on Households and Saving (Kakei to Chochiku ni kansuru Chousa) conducted in Japan by the Yu-cho Foundation (Yu-cho Zaidan) in 2013 included a question that asked respondents how they plan to respond to the expected change in inheritance taxation. The data from this survey also contain information on households' bequest and saving motives. By exploiting such data, it is possible to analyze how households plan to respond to changes in tax policy and what factors can explain the observed differences in household response. In particular, this paper will assess how differences in bequest and saving motives affect household response to changes in transfer

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people may have and the presence of heterogeneity of preferences.

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tax policy. While the nature of bequest motives is the key building block for the theoretical analysis of transfer taxation (Kopczuk, 2013), we still lack empirical work that directly examines the implications of bequest motives for how transfer taxation affects household bequest behavior.

The rest of the paper is organized as follows. Section 2 provides a brief description of the recent change in the structure of inheritance and gift taxes in Japan. Section 3 reviews the literature that examines household behavioral response to transfer taxation. A theoretical framework is presented in Section 4. Section 5 discusses the data, the econometric methodology, and the variables used for the estimation. Estimation results are presented in Section 6. Section 7 summarizes the key findings and discusses some policy implications.

2.   Inheritance and Gift Taxes in Japan

In Japan, an inheritance tax is imposed on the total amount of wealth received by the recipient. Effective January 1, 2015, a number of changes were made with regard to inheritance and gift taxes pursuant to the 2013 Tax Reform that was part of the Comprehensive Reform of Social Security and Tax. The most important revision was a reduction in the basic deduction of the inheritance tax by 40% from "50 million yen plus 10 million yen multiplied by the number of statutory heirs" to "30 million yen plus 6 million yen multiplied by the number of statutory heirs." For instance, if the decedent had a wife and two children, then the number of his statutory heirs would be three and the basic deduction in this case would be 48 million yen (this would have been 80 million yen before the revision). If the total value of the decedent's assets exceeds this amount, each of his heirs is required to pay an inheritance tax on the taxable amount of wealth received.[6] It is the effect of this change in the basic deduction of the inheritance tax on household behavior that will be analyzed in this paper. As part of the same reform, the number of tax brackets for the inheritance tax was increased from six to eight and the tax

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[6] In Japan, the surviving spouse is entitled to a substantial credit against the assessed inheritance tax. Minors under the age of 20 and those with disabilities also receive a tax credit.

rate for the highest bracket was increased from 50% to 55% for a taxable amount of more than 600 million yen but the present analysis will not consider the impact of these changes in tax policy.

As for *inter vivos* transfers, a gift tax is imposed on the value of such transfers in Japan. There is an annual exemption of 1.1 million yen per recipient on each year's taxable gift. It is thus possible to take advantage of the basic deduction in the gift tax system to reduce the burden of inheritance taxes by making a small gift each year.[7] Effective January 1, 2015, the gift tax structure was also revised by reducing the tax rate in cases where donees are the children or grandchildren of the donor while raising the tax rate for the highest bracket from 50% to 55% for a taxable amount of more than 45 million yen.[8] In addition, there are currently various gift tax exemptions for funds for housing acquisition, education, marriage, and childcare to encourage parents and grandparents to support their children and grandchildren by facilitating the early transfer of their assets.

The reduction in the basic deduction of the inheritance tax as well as the increase in inheritance tax rates were implemented mainly to respond to a significant reduction in land values since the collapse of the bubble economy and to prevent the persistence of inequality.[9] On the other hand, the revision of the gift tax structure as well as the creation of gift tax exemptions for education, etc., were intended to encourage the early transfer of assets from the elderly to younger generations and to thereby boost consumption and promote the revitalization of the economy.
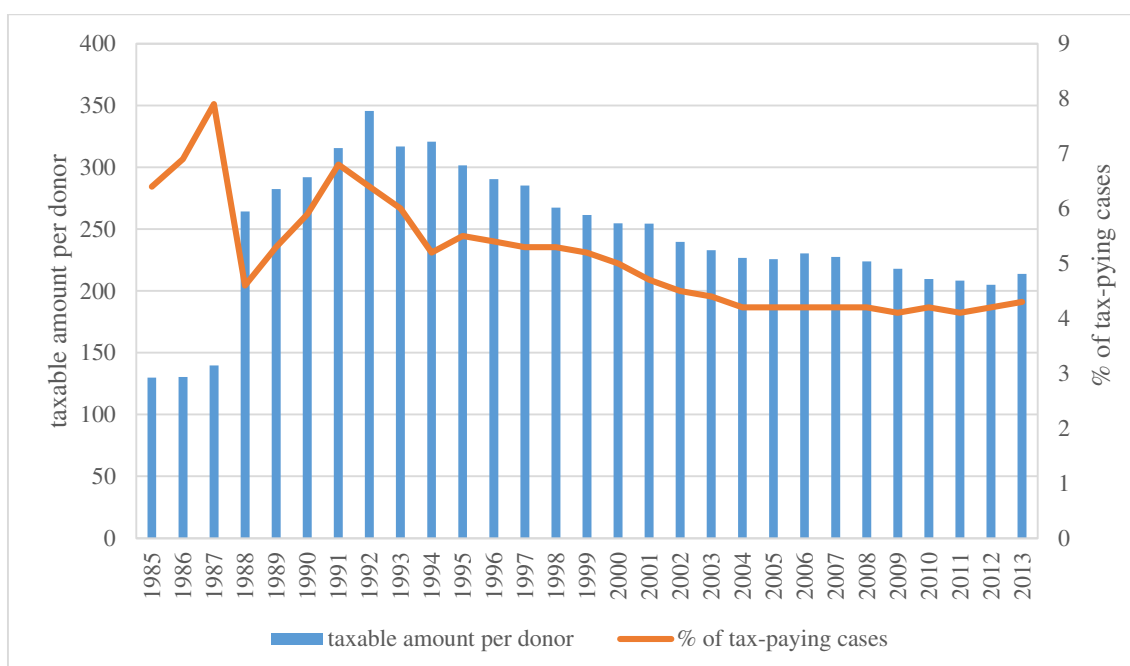
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[7] However, the value of gifts received within three years of the death of the donor is added to the value of inheritance and is subject to inheritance taxes.

[8] In the case of Japan, people can also opt for what they call a taxation system for settlement at the time of inheritance instead of a taxation system for each calendar year as long as the donor is 60 years old or above and the donees are his/her children or grandchildren (eligibility for this system was relaxed effective January 1, 2015). Under this system, the recipient is required to pay gift taxes on *inter vivos* transfers at the time of the transfer, but the amount of gift taxes already paid is subtracted from the total amount of the inheritance tax payable, which is calculated based on the total value of gifts and inheritances received. This system has a special deduction of 25 million yen and any gift whose value is above this amount is subject to a uniform tax rate of 20%. If the recipient opts for this system, he/she is not eligible for the annual basic deduction of 1.1 million yen for the gift tax.

[9] This paragraph is written based on information provided by the Ministry of Finance at http://www.mof.go.jp/tax_policy/publication/brochure/zeisei13/index.htm (accessed on April 4, 2016).

Figure 1 shows the average amount of taxable bequests per donor as well as the percentage of tax-paying cases (donors) in the total number of deceased persons in Japan for the 1985-2013 period. The significant increase in the average taxable amount of wealth and the reduction in the percentage of tax-paying cases in 1988 was due to an increase in the basic deduction of the inheritance tax in that year in response to a sharp rise in asset prices. After peaking in 1992, the average amount of taxable wealth per donor has steadily declined, partly due to a reduction in land values since the collapse of the bubble economy. It was just over 200 million yen in 2013. As for the percentage of tax-paying cases, it once reached almost 8% in 1987, but it has been just over 4% for the past 10 years. This underscores the fact that a relatively small share of people is subject to inheritance taxes in Japan.

Figure 1. Taxable amount of bequests per donor (in million yen) and % of tax-paying cases

To compare the situation of Japan with that of other countries, Figure 2 shows the share of estate, inheritance, and gift tax revenue as the percentage of gross domestic product (GDP) for the 1985-2014 period for selected countries. This share was about 0.36% in

Japan in 2014, higher than in the US and the United Kingdom but lower than in France. As the figure illustrates, these taxes are not a major source of revenue in most countries and they, on average, constituted only about 0.13% of GDP among the OECD member countries in 2013. Limited revenue makes the elimination of such taxes a realistic policy option, and a number of developed countries, such as Australia, Canada, and Sweden, have indeed repealed these taxes (Kopczuk, 2013). Japan's case therefore seems to deviate from the trend observed in some parts of the world and it would be interesting to examine how households would respond to the recent reduction in the basic deduction of the inheritance tax.

Figure 2. Estate, inheritance, and gift taxes as % of GDP
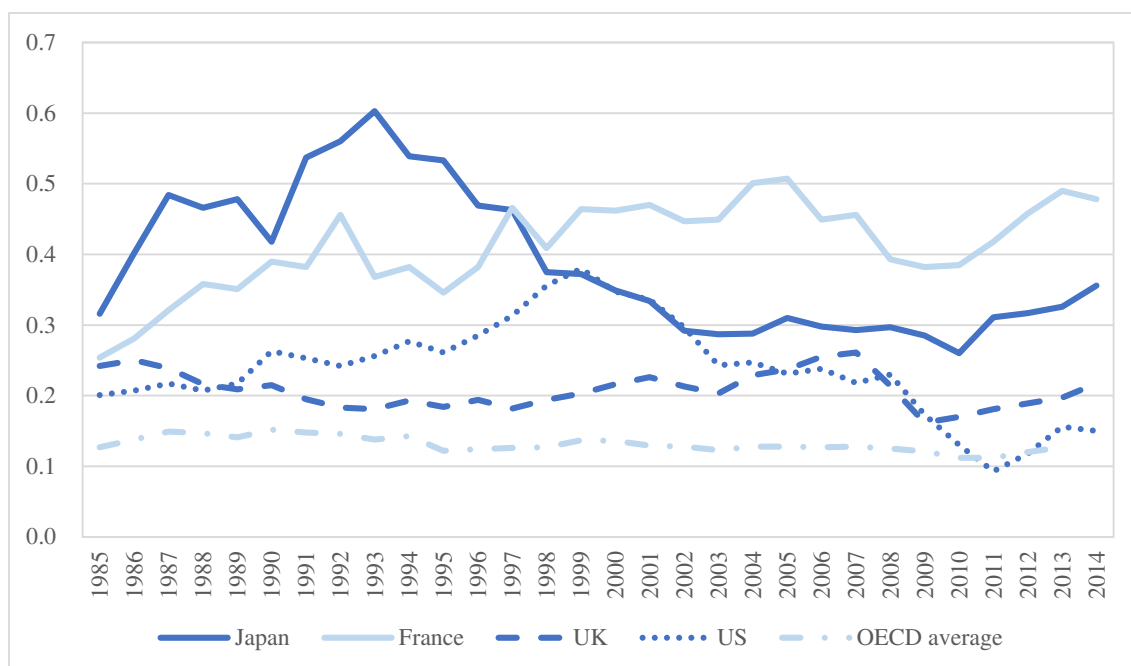
Source: Based on OECD Revenue Statistics (https://stats.oecd.org/Index.aspx?DataSetCode=REV, accessed on April 4, 2016).

3. Literature Review

Empirical work on the effect of transfer taxation on household behavior with respect to wealth accumulation and intergenerational transfers is relatively limited, but growing efforts have been made to analyze the behavioral response of households to transfer

taxation in recent years. Kopczuk and Slemrod (2001) find that an aggregate measure of reported estates is generally negatively correlated with summary measures of estate tax rates based on a time series analysis using US estate tax return data for the 1916-1996 period. Their cross-sectional analysis also suggests a negative effect of estate taxes, particularly for those who die testate at a more advanced age. Moreover, expected taxation over an individual's lifetime is found to matter more than the tax rate prevailing at death. Estimation using the marginal tax rate at the age of 45 indicates that an estate tax rate of 50% would reduce the reported net worth of the richest half percent of the population by 10.5% (Kopczuk and Slemrod, 2001).

On the other hand, Joulfaian (2006) uses an income tax equivalent measure of the estate tax rate, instead of marginal tax rates, to examine the behavioral response of bequests to estate taxation. Based on time series data on federal estate tax revenues over a period of 50 years for the US, estate taxation is found to dampen taxable bequests by almost 10% (Joulfaian, 2006).

These findings suggest that estate taxation reduces wealth accumulation, induces tax avoidance, or both (Kopczuk and Slemrod, 2001). Some studies pay particular attention to the behavioral response of *inter vivos* transfers to gift taxes in light of the tax-advantaged nature of *inter vivos* transfers.[10] By exploiting time series and cross-sectional variation, Bernheim, Lemke and Scholz (2004) analyze the effect of a reduction in the tax disadvantage of bequests relative to gifts on the timing of intergenerational transfers in the US. They find that households experiencing larger declines in the expected tax disadvantage of bequests reduced *inter vivos* transfers by more in comparison with those experiencing smaller declines, suggesting that the timing of transfers is responsive to applicable estate and gift tax rates. Such findings also suggest that bequests are made intentionally, at least for wealthy households, and are likely to be attributable to altruism, strategic interactions among family members, or some combination of the two (Bernheim, Lemke and Scholz, 2004).

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[10] For instance, in the case of the US, the gift tax is calculated on a tax-exclusive basis while the estate tax is calculated on a tax-inclusive basis, and the gift tax also allows annual exemptions.

In contrast, based on survey data from the US, McGarry (2001) finds that while wealthy parents respond to tax incentives and make *inter vivos* transfers to reduce the burden of estate taxation, they transfer an amount significantly below what is permitted by tax policy. Empirical evidence thus suggests that parents tend to maintain their practice of equal treatment of their children (i.e., equal division of their estates at death) and that they hardly act purely to minimize estate taxes (McGarry, 2001). Similar findings are obtained by Joulfaian and McGarry (2004). Longitudinal data from gift tax records indicate that the wealthy do respond to changes in tax policy, but such a response with respect to lifetime transfers is limited, totaling less than 10% of terminal wealth (Joulfaian and McGarry, 2004).

Poterba (2001) also finds for the US that a significant fraction of households with substantial net worth are not taking advantage of opportunities to use *inter vivos* transfers as a way of reducing estate taxes. In addition, he finds that the type of assets affects the likelihood of *inter vivos* transfers, with households being less likely to make *inter vivos* transfers if their assets are predominantly in illiquid form or their assets have substantial unrealized capital gains, as a result of which the benefits of the step-up basis at death are greatest (Poterba, 2001). To look at the role of capital gains taxes more closely, Joulfaian (2005) examines the effect of capital gains taxes, in addition to that of estate and gift taxes, on the timing of intergenerational transfers. By using data on federal estate tax records and exploiting variations in state estate, gift, and capital gains tax rates in the US, he finds that both capital gains and gift taxes are important determinants of the timing of transfers.

Previous work thus indicates that while households are responsive to changes in transfer taxes, tax minimization by itself does not provide a complete picture of the objective of taxpayers and some other motive for holding onto wealth until late in life is required (Kopczuk, 2013). Kopczuk (2013) therefore emphasizes the importance of recognizing the trade-off that taxpayers face between reducing tax liabilities and losing control over their wealth. Kopczuk (2007) conducts an interesting analysis based on information on estate tax returns filed in 1977 for the US and provides evidence for such trade-off. His

analysis shows that the wealthy actively pursue tax avoidance, but such a behavior tends to be observed only following the onset of a terminal illness. This suggests that planning *a priori* is costly, either in financial, strategic, or psychological terms, which makes people attach some value to holding onto their wealth (Kopczuk, 2007).

While precautionary saving could be one of the possible explanations for the trade-off, Kopczuk (2007) argues that this is less applicable for very wealthy individuals for whom expenditures related to medical and long-term care are relatively insignificant, as indicated by survey data. Instead, he suggests other possible explanations, including the possibility of a strategic or wealth-in-utility motive for bequests. Moreover, Kopczuk (2013) points out an alternative explanation, which is the possibility that taxpayers may not pay much attention to tax consequences in the first place.

Given that data from the Survey on Households and Saving contain information on households' bequest and saving motives, this paper aims to examine how such motives, among others, affect household behavior toward transfer taxation. Furthermore, previous studies largely analyze the effect of transfer taxes on the timing of intergenerational transfers, but households also have the option of using their wealth to finance their own consumption in response to an increase in estate or inheritance tax rates. Hence, this paper will widen the scope of the analysis and consider various options that households may choose when examining their behavioral response to changes in inheritance taxes in the case of Japan.

4. Theoretical Framework

As the theoretical literature suggests, the effect of transfer taxation on wealth accumulation and intergenerational transfer behavior depends critically on the nature of bequest motives. This section briefly describes the major models of bequest motives and the expected effect of transfer taxes on bequest behavior under each model in light of the Japanese context where the key change in tax policy is the reduction in the basic deduction of the inheritance tax and where people can enjoy the tax-advantaged nature of *inter vivos*

transfers.[11]

Accidental bequests (no bequest motive)

Because of uncertain lifetimes and precautionary saving for unforeseen income or health shocks, a positive amount of wealth may be left unconsumed and passed onto the next generation (Davies, 1981; Yaari, 1965). Such bequests can be considered accidental or involuntary bequests, and in the case of these accidental bequests, changes in transfer taxation are likely to have no effect on wealth accumulation or bequest behavior.

Altruistic motive

According to the altruistic model, altruistic parents are assumed to care about the welfare of their children and use transfers to compensate for the lower earnings of their children and/or earning differences among their children (Barro, 1974; Becker and Tomes, 1979). In the case of altruistic parents, an increase in inheritance taxes is likely to distort their bequest behavior, for instance, by altering the timing of their transfers as they care about the (net-of-tax) amount of transfers that their children receive from them. Nordblom and Ohlsson (2006) provide a theoretical model in which altruistic parents avoid taxes by changing the timing of their transfers when *inter vivos* transfers are taxed separately from bequests. Although people do not seem to take full advantage of opportunities to use *inter vivos* transfers as a way of reducing tax liabilities, empirical evidence provides support for such a behavioral response, as reviewed in Section 3.

Joy-of-giving motive

Parents may have a joy-of-giving or warm-glow motive for bequests whereby they gain utility from the act of giving (Andreoni, 1990). Unlike the altruistic model, parents with a joy-of-giving motive for bequests are not concerned about the welfare of their children,

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[11] See Laitner and Ohlsson (2001) for a comprehensive review of theoretical models of bequest motives and their implications for public policy, including estate taxation.

and thus, wealth transfers do not have any compensatory effects. However, parents with a joy-of-giving motive for bequests still care about the (net-of-tax) amount of transfers that their children receive from them and try to maximize the (net-of-tax) amount of transfers to them. Consequently, changes in inheritance taxes are likely to make parents alter the timing of their transfers as in the case of the altruistic model.

Wealth-in-utility motive

Alternatively, parents may have a wealth-in-utility motive for bequests whereby they enjoy being wealthy (Carroll, 2000) and care simply about the (gross-of-tax) amount of wealth that they transfer to their children. As a result, changes in inheritance taxes are unlikely to have any effect on parents' bequest behavior in this case.

Exchange or strategic motive

Bernheim, Shleifer and Summers (1985) propose an alternative model of intergenerational transfers in which parents bequeath in order to get more attention from their children. Similarly, under the exchange model, parents transfer wealth to their children in exchange for the provision of services from them (Cox, 1987). The exchange model predicts that transfers are positively related to the services provided by children. When a strategic motive is operative, the services provided by each child in the family are positively related to the size of the potential bequest of parents. Given that an increase in inheritance taxes raises the price that parents need to pay in order to obtain services from their children, this is likely to distort parents' bequest behavior. However, whether an increase in inheritance taxes will induce parents to maintain the amount of transfers that their children receive from them by altering the timing of their transfers or to reduce wealth accumulation by spending the newly taxable amount of wealth on their own consumption is an empirical question and depends on how elastic they are toward price changes.

Unfortunately, given data limitations, it is not possible to distinguish *a priori* an altruistic

motive from a joy-of-giving or wealth-in-utility motive in the present analysis. Nonetheless, we can make some inferences from the answers that households provided to some of the questions in the survey. For instance, if households plan to leave a bequest no matter what and they would reallocate the newly taxable portion of wealth to *inter vivos* transfers in response to the reduction in the basic deduction of the inheritance tax, we can infer that these households have either an altruistic motive or a joy-of-giving motive for bequests. On the other hand, if households plan to leave a bequest no matter what but they would keep their bequest plans as they are despite the change in inheritance taxes, we can infer that these households have a wealth-in-utility motive for bequests.

5. Data and Methodology

5.1 Data

The data used for the empirical analysis come from the Survey on Households and Saving, which was conducted in Japan during the period of November-December 2013 by the Yu-cho Foundation. A sample of households with two or more persons was drawn to be nationally representative using a two-stage stratified random sampling procedure. Out of 1,734 households who completed the questionnaire, we have 961 observations for our analysis after excluding households without any children or those with missing information on key variables.

This survey was conducted with the aim of better understanding households' livelihood and saving behavior. It collected detailed information on saving, housing, wealth, labor supply, consumption, pensions, and bequests. The survey asked households about bequests and/or *inter vivos* transfers received or expected to be received from the parents and/or parents-in-law of household heads as well as about their plans for bequests and *inter vivos* transfers to their own children.[12] Information on saving motives was also collected.

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[12] Note that the question on households' bequest plans was asked with regard to bequests toward children only, i.e., not toward spouse.

Households were also asked how they would respond in the face of changes in inheritance taxes. More specifically, they were asked whether or not they would adjust their bequest plans if the lowering of the basic deduction of the inheritance tax, which was under consideration by the government at that time, was to be implemented. By exploiting answers to this particular question, this paper analyzes what factors, including bequest and saving motives, affect household response to changes in inheritance tax policy in Japan.

In response to a reduction in the basic deduction of the inheritance tax, households basically have three options to choose from: (i) reallocate the newly taxable amount of wealth to finance their own consumption, (ii) reallocate the newly taxable amount of wealth to *inter vivos* transfers, or (iii) do nothing. According to Table 1, about 11% and 13% of households would reallocate the taxable amount of wealth to consumption or to *inter vivos* transfers to their children, respectively, to avoid taxation.[13] Table 1 also shows that about two-thirds of the sample would not revise their bequest plans. About 19% would not do so mainly because they are not so concerned about taxation.[14]

Table 1. Expected response to the change in inheritance tax policy

Expected response	Reallocate the taxable amount of wealth to consumption	Reallocate the taxable amount of wealth to *inter vivos* transfers	Do nothing	Do nothing - already under the exemption level
Share (%)	11.34	13.32	18.73	56.61

Source: Calculations based on data from the Survey on Households and Saving.

It is interesting to note that a relatively large percentage of households do not appear to be responsive to tax changes because of their inattention to tax consequences, which is suggested as one of the possible explanations for households' limited reaction to transfer

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[13] There were 10 households in the original sample who would revise their bequest plans by making charitable donations instead. However, given the relatively small number of such households and the inappropriateness of including them in other groups, they were excluded from the sample.

[14] This group also includes those who would not revise their bequest plans because the expected size of their bequests is more than 50 million yen (14 households) and those with other reasons for not making any adjustment (35 households).

taxes by Kopczuk (2013). As the last column of Table 1 shows, we also observe many households, more than half of the sample, who would not revise their bequest plans simply because the expected size of their bequests is less than 30 million yen, the minimum taxable level. In other words, the change in inheritance tax policy would not affect households with relatively low wealth levels.

As in many other household surveys, the upper tail of the wealth distribution is unlikely to be accurately represented in the data used for the present analysis. Since inheritance and gift taxes are more applicable to the top of the distribution, this imposes some limitations on the analysis. Nevertheless, given that the recent reduction in the basic deduction of the inheritance tax in Japan is likely to broaden the segment of the population whose heirs would be subject to the inheritance tax, it would still be worthwhile to examine the effect of changes in the inheritance tax on the vast majority of the population.

5.2 Methodology

Given that there are multiple options that households can choose from in response to the expected reduction in the basic deduction of the inheritance tax, as illustrated in Table 1, the multinomial logit (MNL) model will be used to identify the key determinants of household response to the change in transfer tax policy. The MNL model predicts the probability of a particular outcome out of several unordered alternatives. In this case, we have three possible outcomes or household responses, namely (i) reallocate the newly taxable amount of wealth to finance their own consumption, (ii) reallocate the newly taxable amount of wealth to *inter vivos* transfers, and (iii) make no adjustment (mainly because of a lack of concern about taxes).

We also have a group of households who would not revise their bequest plans due to the expected small size of their bequests, as noted earlier. Nonetheless, given that their reaction is not directly related to the expected change in inheritance tax policy (i.e., it was due to the fact that they would not be affected by the change in the inheritance tax), these households are excluded from the estimation sample. However, as a robustness check and

for comparison purposes, we also estimate the MNL model using the full sample by considering "make no adjustment" as one alternative outcome regardless of the reasons behind the lack of action.

The probability that household i opts for response j is expressed as:

$$\text{Prob}(Y_i = j) = \frac{e^{\beta_j x_i}}{\sum_{k=1}^{3} e^{\beta_k x_i}}, \quad j = 1, 2, 3 \tag{1}$$

where Y_i is the response that household i chooses, x_i is the vector of observed characteristics of household i, and β_j is the vector of coefficients on x_i applicable to households in outcome j. However, the model is unidentified in the sense that there is more than one solution to each β_k, which leads to the same probabilities for $Y = 1$, $Y = 2$, and $Y = 3$. As a result, one β_k must be chosen as the base or reference category and set equal to zero. In the present analysis, the coefficients of outcome 3 (no adjustment) are set equal to zero and the remaining sets of coefficients are then estimated in relation to this benchmark.

The regression results will be presented in this paper as relative risk ratios, which represent the probability of each outcome relative to the base category. For instance, if we set $Y = 3$ as the base category, the relative risk ratio for $Y = 1$ for a change in each explanatory variable x is given by:

$$\frac{\text{Prob}(Y=1)}{\text{Prob}(Y=3)} = e^{\beta_1 x} \tag{2}$$

5.3 Empirical Specification

Dependent variable

Our main variable of interest is households' response to the anticipated reduction in the basic deduction of the inheritance tax. As summarized in Table 1, the expected responses

of households are categorized into three different options, namely (i) reallocate the newly taxable amount of wealth to finance their own consumption, (ii) reallocate the newly taxable amount of wealth to *inter vivos* transfers, and (iii) make no adjustment (mainly because of a lack of concern about taxes). The variable indicating household response is the dependent variable of the MNL model to be estimated in this paper. When estimating the MNL model for the full sample, "make no adjustment because of the expected small size of bequests" will be combined with "no adjustment mainly because of a lack of concern about taxes" as the base category.

Precautionary saving

One possible explanation for households' relatively inelastic behavior toward changes in transfer taxation is that households engage in precautionary saving for unforeseen income or health shocks. If a relatively large portion of saving is attributable to precautionary motives, bequests in such cases are likely to be accidental or involuntary and households are less likely to respond to changes in transfer tax policy (i.e., outcome 3). The Survey on Households and Saving included a question on the relative share of saving for different purposes. Based on responses to this question, a variable is constructed that indicates the share of precautionary saving in total saving by aggregating the share of (i) saving for illness, disasters, or any other unexpected incidents and (ii) saving for no reason in particular but to have peace of mind.

Bequest motives

As briefly described in Section 4, the nature of bequest motives is expected to play a key role in determining the effect of transfer taxation on household behavior. Fortunately, the Survey on Households and Saving includes a question on households' bequest plans. Using answers to this question, a variable that indicates households' bequest motive is constructed: (i) *altruistic (or joy-of-giving) motive* if the household wants to leave a bequest no matter what; (ii) *exchange motive* if the household wants to leave a bequest only if their children provide care during old age or take over the family business; and

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(iii) *no bequest motive* if the household is not making any special efforts to leave a bequest but will leave whatever is left or if the household does not want to leave any bequests.

If the household has an altruistic (or joy-of-giving) motive, it is likely to reallocate the taxable amount of wealth to *inter vivos* transfers to avoid an increase in their children's tax bill (i.e., outcome 2). If the household has an exchange motive, it is also likely to adjust its bequest plans to avoid taxes, but whether it does so by reallocating the taxable amount of wealth to its own consumption or *inter vivos* transfers is an empirical question. Since the lowering of the basic deduction of the inheritance tax makes the price of attention or services from one's children more expensive, parents may use the taxable amount of wealth to finance their own consumption (including care services from professional care workers) (i.e., outcome 1). By contrast, if the demand for attention or services is relatively price inelastic, parents may reallocate the taxable amount of wealth to *inter vivos* transfers instead (i.e., outcome 2). If the household has no bequest motive, it is likely to keep its bequest plans as they are (i.e., outcome 3).

(Expected) receipt of intergenerational transfers from parents and/or parents-in-law

Whether individuals themselves have received any bequests and/or *inter vivos* transfers from their parents and/or parents-in-law may affect their own bequest behavior. To examine this, we include a variable that equals unity if the household has received or expects to receive bequests and/or *inter vivos* transfers from the parents and/or parents-in-law of the household head. We would expect the (expected) receipt of intergenerational transfers to increase the probability of the household's making *inter vivos* transfers to avoid taxes (i.e., outcome 2) to ensure that what has been received from the previous generation is passed onto the next generation.

Financial wealth

The level of wealth may also affect households' response. It would have been ideal to calculate the value of net worth consisting of financial assets and non-financial assets net

of total debt. Unfortunately, the data used for this analysis do not contain information on the value of non-financial assets. We therefore construct the wealth variables using information on financial assets only. To supplement this, we control for whether or not the household owns a house or an apartment. Given that the literature suggests that households with assets largely in liquid form are likely to be more responsive to transfer taxation (Poterba, 2001), constructing wealth variables using data on financial assets only may be less of an issue. Financial assets in this paper include only marketable assets such as deposit accounts, stocks, and mutual funds. Note that the wealth variables are expressed as quintiles of financial assets. Following the work of Karagiannaki (2015), to account for age differences in wealth accumulation, the quintiles are defined separately for five age groups.[15]

Other explanatory variables include characteristics of the household head such as his/her age, gender, educational attainment, and marital status.[16]

6. Estimation Results

6.1 Descriptive Statistics

Table 2 provides the summary statistics of the explanatory variables included in the estimation. The average age of household heads is about 56 years old and the majority of them are male and married. About 12% of household heads completed only junior high school while about half of them graduated from high school. Almost one-third of household heads have a bachelor's degree or higher. While about 76% of households own a house or an apartment, one-quarter of them have received or expect to receive bequests and/or *inter vivos* transfers from the parents and/or parents-in-law of household heads.

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[15] The age groups are defined as (i) less than 35, (ii) 35-44, (iii) 45-54, (iv) 55-64, and (v) 65 years old or older.

[16] It would have been ideal if we could control for whether or not household heads are widowed and for the number of children they have. Such information would indicate the number of statutory heirs, which affects the amount of the basic deduction of the inheritance tax. Unfortunately, due to data limitations, it was not possible to include variables reflecting these demographic characteristics of households.

As for financial wealth, households have, on average, about 12 million yen of financial assets. Figure 3 shows the average amount of financial wealth by age group. Although the figure is drawn based only on the amount of financial assets, rather than the amount of net worth, it still seems to support, to some extent, the lifecycle saving hypothesis in that wealth peaks just before the age of retirement. As commonly found in the literature, however, it is difficult to explain the relatively high level of wealth held by those aged 65 years old and above by the lifecycle hypothesis alone.

Table 2. Summary statistics

Variables	Mean	Standard Deviation
Household head's characteristics		
Age group		
Less than 35	0.07	
35-44	0.20	
45-54	0.17	
55-64	0.23	
65+	0.33	
Female	0.07	
Married	0.92	
Educational attainment		
Junior high school	0.12	
High school	0.51	
Junior college	0.06	
University or above	0.31	
Wealth		
Wealth quintile (age adjusted)		
1st quintile	0.20	
2nd quintile	0.20	
3rd quintile	0.20	
4th quintile	0.20	
5th quintile	0.19	
Homeowner	0.76	
(Expected) receipt of intergenerational transfers	0.25	
Saving motives		
% of precautionary saving	27.36	27.00
% of precautionary saving squared	1477.00	2325.69
Bequest motives		
No bequest motive	0.65	
Altruistic motive	0.29	
Exchange motive	0.06	
No. of observations	961	

Source: Calculations based on data from the Survey on Households and Saving.

To gauge causes for the high level of financial wealth possessed by those who are of retirement age (i.e., 65 years old and above), Figure 4 shows the decomposition of saving motives by age group. Note that about 15% of the sample does not have any saving and Figure 4 is drawn based on the sample excluding such households. While about 50% of saving is for retirement among those of retirement age, about 35% of their saving is for precautionary purposes.[17] This sharply contrasts with the small share, less than 2%, of saving for bequests. Figure 4 thus suggests that a significant portion of bequests is likely to be accidental or involuntary in the case of Japan.

Figure 3. Average level of financial assets by age group (million yen)
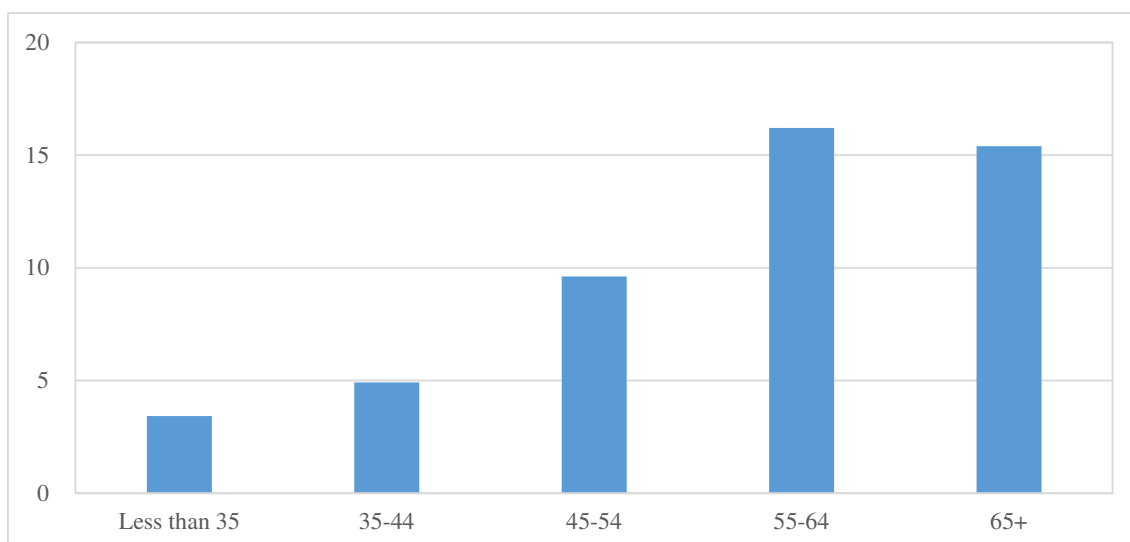
Source: Calculations based on data from the Survey on Households and Saving.

It is also interesting to note that at least one-quarter of saving is for precautionary motives for all age groups in Japan. As for other saving motives, as expected, the share of saving for children (e.g., their education and marriage) is relatively large for younger age groups but rapidly decreases with the age of the household head.[18] Saving for housing or durable goods purchases also declines with age but to a much lesser extent. The share of saving

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[17] The share of saving for retirement is calculated by aggregating (i) saving for old age and (ii) saving for long-term care.

[18] Saving for marriage includes that for marriage of children as well as that for marriage of household heads themselves. Because of the way the question was worded, we cannot distinguish between the two.

for leisure is relatively low for all age groups.

To look more closely into saving motives, Figure 5 shows the share of saving for precautionary motives, retirement, and bequests by wealth quintile for households who have some saving. It is interesting to note that the share of precautionary saving is relatively high for households in the 2nd wealth quintile. This indicates that the amount of precautionary saving may not be proportional to total wealth or earnings, and instead, households are more likely to put aside a certain absolute amount of wealth for such purposes. In contrast, the share of saving for retirement and bequests increases monotonically with wealth. Yet, even among the wealthiest quintile, the average share of saving for bequests is less than 3%.

Figure 4. Decomposition of saving motives by age group (%)
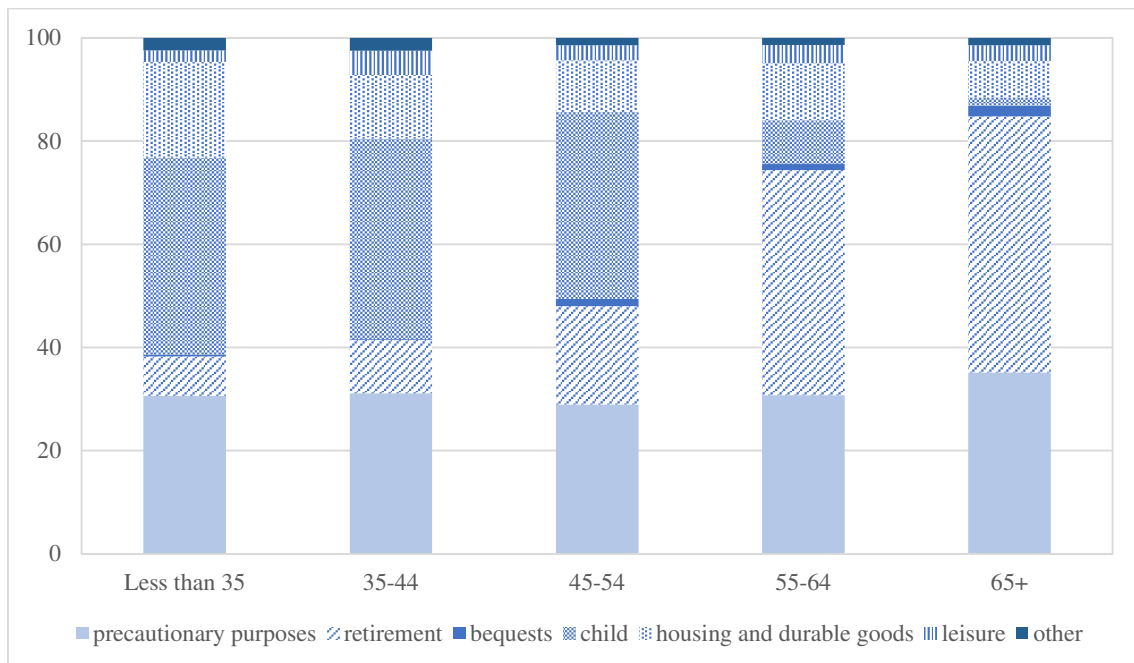
Source: Calculations based on data from the Survey on Households and Saving.

Given what Figures 4 and 5 show, it is not surprising to find that about 65% of households have no bequest motive (Table 2). About 29% have an altruistic (or joy-of-giving) bequest motive (i.e., plan to leave bequests no matter what) whereas about 6% have an exchange motive (i.e., plan to leave bequests under certain conditions). Given that these figures are

comparable to those reported by Horioka (2014), it would be worth comparing the patterns of bequest motives observed in Japan with those in the US. According to Horioka (2014), about 27% of the Japanese sample plans to leave bequests no matter what (about 29% in our case). The share of such households in the US sample is more than double that in Japan (about 58%), suggesting that bequest motives are much stronger in the US than in Japan. As for the exchange motive, the share of those with such a motive is relatively low in both countries, about 5% and 3% in Japan and in the US, respectively (about 6% in our case).

Figure 5. Share of saving for precautionary purposes, retirement, and bequests by wealth quintile (%)
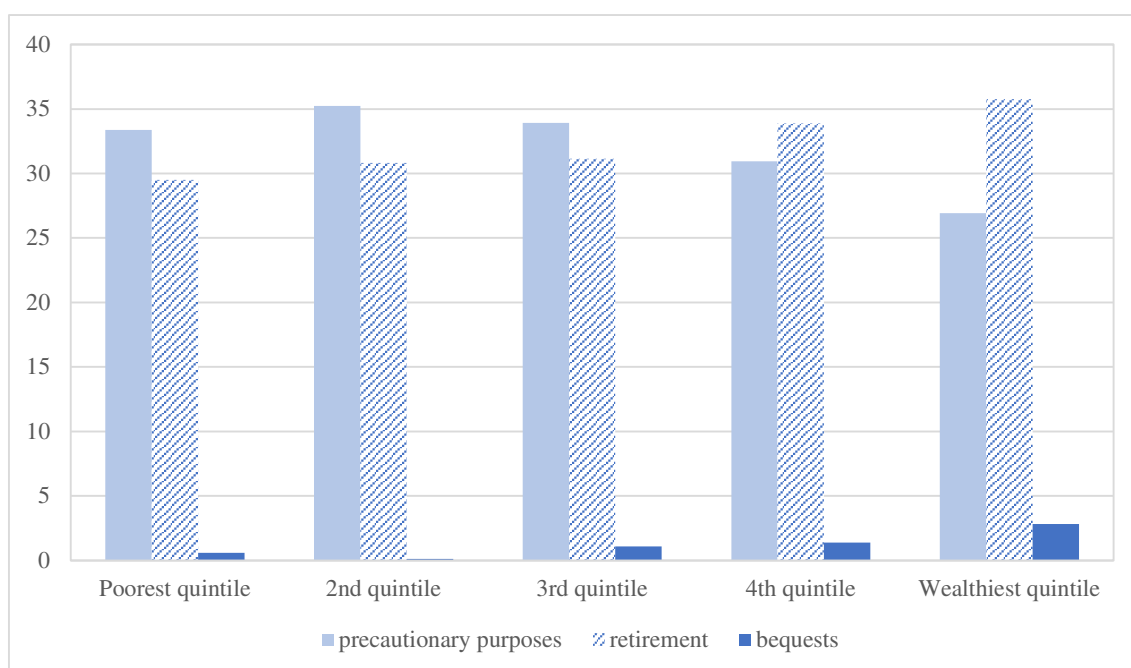
Source: Calculations based on data from the Survey on Households and Saving.

6.2 Regression Results

We first estimate MNL models using the restricted sample, i.e., by excluding households who do not plan to revise their bequest plans despite the expected change in inheritance taxes because of the relatively limited size of their wealth. We assign "no adjustment (mainly because of a lack of concern about taxes)" as our base category and estimate the

probability of "reallocating the newly taxable amount of wealth to finance own consumption" and that of "reallocating the newly taxable amount of wealth to *inter vivos* transfers" relative to this category. Table 3 reports the regression results in terms of relative risk ratios, which indicate the ratio of the probability of the nominated response occurring to the probability of the base category response occurring. If the relative risk ratio is greater than one, it implies that the variable in question increases the probability of the nominated response occurring relative to the base category response.

Note that the most stringent assumption of the MNL model is the independence of irrelevant alternatives (IIA) assumption. This implies that adding or deleting alternative outcome categories does not affect the probability of the remaining categories occurring. The results of the Hausman test based on seemingly unrelated estimation suggest that the IIA assumption is not violated in any specifications discussed in this section.[19]

Model (1) is our basic model while model (2) is the version in which variables relating to bequest and saving motives are included in the estimation. If we compare the results of model (1) with those of model (2), the results are broadly similar in terms of the sign (i.e., whether or not the relative risk ratios are greater than one) and significance level of the relative risk ratios. However, the greater value of pseudo-R^2 for model (2) than that for model (1) underscores the important role played by bequest and saving motives in determining household behavioral response. When discussing the results based on the restricted sample, we focus on the results of model (2).

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[19] The Hausman test based on seemingly unrelated estimation is comparable to the standard Hausman test, but they use different estimators of the variance of the difference of the estimate. The latter has an advantage over the former in that its test results tend to be well-defined.

Table 3. Regression results (restricted sample)

	(1)				(2)			
	Consumption		Inter vivos		Consumption		Inter vivos	
	RRR	S.E.	RRR	S.E.	RRR	S.E.	RRR	S.E.
Household head's characteristics								
Age group								
(Less than 35)								
35-44	0.694	[0.372]	0.368**	[0.187]	0.739	[0.404]	0.455	[0.239]
45-54	0.354*	[0.204]	0.476	[0.242]	0.409	[0.238]	0.604	[0.316]
55-64	0.475	[0.260]	0.321**	[0.163]	0.512	[0.286]	0.424	[0.224]
65+	0.254**	[0.142]	0.336**	[0.168]	0.247**	[0.141]	0.390*	[0.204]
Female	7.457	[11.87]	0.351	[0.431]	9.109	[15.89]	0.382	[0.530]
Married	9.675	[15.84]	0.862	[0.975]	13.84	[24.98]	1.013	[1.289]
Educational attainment								
(Junior high school)								
High school	5.026**	[3.374]	1.704	[0.767]	5.866***	[4.049]	2.382*	[1.166]
Junior college	3.984*	[3.131]	0.509	[0.372]	4.975**	[4.032]	0.708	[0.545]
University or above	3.505*	[2.462]	1.498	[0.731]	4.583**	[3.313]	2.432*	[1.291]
Wealth								
Wealth quintile								
(1st quintile)								
2nd quintile	2.076*	[0.825]	1.211	[0.481]	1.566	[0.660]	0.855	[0.371]
3rd quintile	1.991	[0.856]	2.070*	[0.823]	1.249	[0.581]	1.111	[0.496]
4th quintile	2.577**	[1.091]	1.743	[0.699]	1.863	[0.840]	1.127	[0.552]
5th quintile	1.858	[0.755]	2.031*	[0.757]	1.305	[0.563]	1.388	[0.561]
Homeowner	1.645	[0.538]	0.881	[0.262]	1.680	[0.564]	0.876	[0.278]
(Expected) receipt of intergenerational transfers	1.116	[0.341]	2.088***	[0.575]	1.117	[0.349]	2.009**	[0.575]
Saving motives								
% of precautionary saving					1.041***	[0.016]	1.042***	[0.015]
% of precautionary saving squared					0.9996**	[1.78E-04]	0.9996**	[1.66E-04]
Bequest motives								

	(1)				(2)			
	Consumption		Inter vivos		Consumption		Inter vivos	
	RRR	**S.E.**	**RRR**	**S.E.**	**RRR**	**S.E.**	**RRR**	**S.E.**
(No bequest motive)								
Altruistic motive					1.231	[0.359]	2.722***	[0.740]
Exchange motive					8.240***	[6.069]	10.07***	[7.108]
Constant	0.014**	[0.027]	0.862	[1.127]	0.005**	[0.011]	0.200	[0.294]
No. of observations			417				417	
Pseudo R^2			0.072				0.115	

RRR = relative risk ratios, S.E. = standard errors.

Note: ***, **, * denote statistical significance at the 1%, 5% and 10% levels.

Source: Estimation based on data from the Survey on Households and Saving.

According to the regression results (columns 5 and 7), households whose household heads are relatively old, in particular those aged 65 or above, are, *ceteris paribus*, less likely to make an adjustment to their bequest plans in response to the revision of inheritance tax policy. For instance, the probability of reallocating the taxable amount of wealth to finance one's own consumption relative to not revising one's bequest plans is 75% lower if the household head is aged 65 or older instead of being less than 35 years old. These results highlight the fact that the age of household heads matters for the impact of transfer taxation on household behavior. If changes in tax policy occurs when household heads are relatively advanced in age, it might be more difficult for them to make adjustments to their bequest plans.[20] This seems to be consistent with the findings of Kopczuk and Slemrod (2001) that expected taxation over an individual's lifetime matters more than the tax rate prevailing at death.

The results also illustrate that households with relatively highly educated household heads are more likely to revise their bequest plans in response to the reduction in the basic deduction of the inheritance tax. Such an effect of education seems to be particularly strong for the probability of reallocating the taxable amount of wealth to finance own consumption. This might be due to the fact that educated individuals are more likely to have the necessary knowledge and ability to respond to changes in tax policy and/or pay more attention to the consequences of changes in tax policy.

The level of wealth does not have a significant effect on the probability of revising bequest plans relative to making no adjustment to them. On the other hand, as expected, having received or expecting to receive bequests and/or *inter vivos* transfers from the parents and/or parents-in-law of household heads doubles the probability of reallocating the taxable amount of wealth to *inter vivos* transfers while it has no significant effect on the probability of reallocating it to finance their own consumption. Households who have received or expect to receive intergenerational transfers themselves are thus more likely

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[20] A similar conclusion is reached even if we include an age group dummy for those aged 75 or above (i.e., splitting those aged 65 or above into two groups) as the relative risk ratio of the age group dummy for those aged 75 or above is less than one for the probability of reallocating the newly taxable amount of wealth to consumption and *inter vivos* transfers, though it is not statistically significant in either case.

to avoid an increase in their children's tax bill and ensure that what they have received from the previous generation is passed onto the next generation by altering the timing of their transfers in response to the revision of inheritance tax policy.

As for the effect of saving motives, if the share of precautionary saving increases by 1%, the probability of reallocating the taxable amount of wealth to finance own consumption relative to not revising bequest plans increases by almost 4%. An effect of similar magnitude is found for the probability of reallocating it to *inter vivos* transfers. This is somewhat surprising because we would not expect households with a larger share of precautionary saving to respond to changes in inheritance taxes. However, since the relative risk ratios for the squared term of precautionary saving are less than one and statistically significant in both cases, our results actually suggest an inverted U-shaped relationship between the share of precautionary saving and the relative probability of adjusting bequest plans over no adjustment.

Finally, Table 3 presents some interesting results for the effect of bequest motives on household response. Having an altruistic (or joy-of-giving) motive for bequests increases the probability of reallocating the taxable amount of wealth to *inter vivos* transfers by almost three times more than it increases the probability of not revising bequest plans while it has no significant effect on the probability of reallocating it to finance own consumption. This suggests that, as expected, altruistic parents care about the net-of-tax, not the gross-of-tax, amount of bequests that their children receive. Hence, in comparison with parents with no bequest motive, parents with an altruistic (or joy-of-giving) bequest motive are more likely to avoid an increase in their children's tax bill by reallocating the taxable amount of wealth to *inter vivos* transfers in response to the reduction in the basic deduction of the inheritance tax.

On the other hand, our regression results suggest that having an exchange motive for bequests increases the probability of reallocating the taxable amount of wealth to own consumption and to *inter vivos* transfers relative to keeping bequest plans as they are. For some parents, an increase in inheritance taxes seems to make services or attention that

their children provide too expensive, and as a result, they reallocate the taxable amount of wealth to finance their own consumption (including care services from professional care workers). For other parents, they try to avoid an increase in their children's tax bill by making earlier transfers of wealth to their children so that they can still obtain the same level of services or attention from their children despite the increase in inheritance taxes.

Recall that there were some households who would not revise their bequest plans because of the relatively small size of their expected bequests. We did not include these households in our earlier estimation sample given that their reaction was simply the result of the fact that the expected revision of inheritance tax policy would not apply to them. However, as a sensitivity analysis, we also estimate the MNL model using the full sample by combining "no adjustment because of the expected small size of bequests" with "no adjustment mainly because of a lack of concern about taxes" as the base category. In other words, our base category in this case refers to "no adjustment" regardless of the reasons behind the lack of action. The estimation results are reported in Table 4.

Table 4. Regression results (full sample)

	Consumption		Inter vivos	
	RRR	S.E.	RRR	S.E.
Household head's characteristics				
Age group				
(Less than 35)				
35-44	0.810	[0.333]	0.420**	[0.166]
45-54	0.378**	[0.174]	0.522*	[0.206]
55-64	0.444*	[0.190]	0.330***	[0.131]
65+	0.296***	[0.131]	0.438**	[0.170]
Female	7.721*	[8.666]	0.678	[0.736]
Married	10.01*	[11.89]	1.537	[1.506]
Educational attainment				
(Junior high school)				
High school	5.293***	[3.262]	2.107*	[0.834]
Junior college	5.380**	[3.819]	0.810	[0.536]
University or above	4.239**	[2.707]	2.309**	[0.971]
Wealth				
Wealth quintile				
(1st quintile)				
2nd quintile	0.975	[0.342]	0.553	[0.200]
3rd quintile	0.713	[0.263]	0.678	[0.232]
4th quintile	0.920	[0.328]	0.807	[0.277]
5th quintile	1.210	[0.438]	1.402	[0.463]
Homeowner	1.100	[0.301]	0.584**	[0.145]

	Consumption		Inter vivos	
	RRR	**S.E.**	**RRR**	**S.E.**
(Expected) receipt of intergenerational transfers	1.085	[0.268]	1.763***	[0.386]
Saving motives				
% of precautionary saving	1.039***	[0.013]	1.037***	[0.012]
% of precautionary saving squared	0.9996***	[1.51E-04]	0.9996**	[1.35E-04]
Bequest motives				
(No bequest motive)				
Altruistic motive	1.311	[0.311]	3.017***	[0.652]
Exchange motive	2.370**	[1.028]	3.302***	[1.346]
Constant	0.004***	[0.006]	0.075**	[0.084]
No. of observations		961		
Pseudo R^2		0.094		

RRR = relative risk ratios, S.E. = standard errors.
Note: ***, **, * denote statistical significance at the 1%, 5% and 10% levels.
Source: Estimation based on data from the Survey on Households and Saving.

In terms of relative risk ratios, the results are broadly similar to those reported in Table 3. Hence, the main conclusion of the earlier estimation with the restricted sample regarding the effect of bequest and saving motives is maintained even if we include in the estimation sample those households with a relatively small size of expected bequests.

Key differences between the results reported in Table 4 and those reported in Table 3 include the fact that the use of the full sample makes some of the relative risk ratios statistically significant, include the negative effect of having older household heads on the probability of reallocating the taxable amount of wealth to finance own consumption or to *inter vivos* transfers relative to not revising bequest plans, the positive effect of having a female or married household head on the relative probability of reallocating the taxable amount of wealth to finance own consumption, and the negative effect of owning a house or an apartment on the relative probability of reallocating the taxable amount of wealth to *inter vivos* transfers.

In sum, this paper finds that bequest and saving motives play a key role in determining household behavioral response toward changes in inheritance taxes. As expected, parents with an altruistic (or joy-of-giving) motive for bequests are more likely to avoid an

increase in their children's tax liability by making earlier transfers of wealth through *inter vivos* transfers relative to keeping their bequest plans as they are in response to the reduction in the basic deduction of the inheritance tax. While the results also suggest that households with an exchange motive for bequests are more likely to adjust their bequest plans in response to changes in tax policy than those with no bequest motive, its effect is found to be heterogeneous. Some households are found to respond by reallocating the taxable amount of wealth to finance their own consumption whereas other households reallocate it to *inter vivos* transfers instead. As for the effect of saving motives, we find an inverted U-shaped relationship between the share of precautionary saving in total saving and the probability of adjusting bequest plans relative to making no adjustment.

Turning to our other findings, the age and educational attainment of household heads matter for the effect of transfer taxation on household behavior. If changes in tax policy take place when the household head is relatively advanced in age, the household is less likely to adjust its bequest plans. On the other hand, households with highly educated household heads are more likely to respond to changes in tax policy. Finally, the (expected) receipt of intergenerational transfers themselves is more likely to induce households to reallocate the taxable amount of wealth to *inter vivos* transfers to avoid an increase in their children's tax bill. This suggests that households who receive a bequest from their parents regard the bequest as the wealth of their family and they are obliged to pass it onto their children.

7. Conclusions

This paper has made an attempt to examine the effect of wealth transfer taxation on household bequest behavior. More specifically, by exploiting unique data on the household response to the expected reduction in the basic deduction of the inheritance tax in Japan, this paper analyzed what factors affected the expected reaction of households toward this change in tax policy. Given that the data used in this paper also contained information on the bequest and saving motives of households, it was possible to examine the effect of these motives on the way changes in inheritance taxes affect household

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bequest behavior.

According to data we analyzed, more than half of households would not change their bequest plans in response to the change in inheritance taxes because of the small size of their expected bequests. Among the rest of the sample, about 43% would not make any adjustment to their bequest plans mainly because of a lack of concern about tax consequences. In contrast, about 26% and 31% of households would reallocate the taxable amount of wealth to finance their own consumption and to *inter vivos* transfers, respectively, to avoid taxes. The results presented in this paper are thus broadly consistent with the previous findings for the US to the extent that households adjust their bequest plans to changes in transfer taxes but only to a limited extent.

These descriptive statistics reveal that there is a non-trivial number of households who are not responsive to changes in inheritance taxes because of their lack of concern about tax consequences at least in the case of Japan. This seems to support the suggestion made by Kopczuk (2013) as an alternative explanation for the limited response of households toward changes in inheritance taxes, which is the possibility that taxpayers may not pay much attention to tax consequences in the first place. This may partly reflect the fact that the bequest motives of Japanese households are relatively weak and/or the fact that the majority of their saving is for either retirement or precautionary purposes.

Indeed, our estimation results highlight the role of bequest motives in determining household behavioral response. Parents with an altruistic (or joy-of-giving) motive for bequests are more likely to avoid an increase in their children's tax bill by reallocating the taxable amount of wealth to *inter vivos* transfers relative to keeping their bequest plans as they are. Parents with an exchange motive for bequests are also found to be responsive to changes in tax policy, but their reaction is heterogeneous: some households reallocate the taxable amount of wealth to finance their own consumption while others reallocate it to *inter vivos* transfers.

The current research is not, however, without any caveats. It is based on households'

"expected" response to the anticipated change in inheritance tax policy. The actual behavior of some households may, of course, differ from what they said they would do. It is therefore necessary to examine the effect of the revision of the inheritance tax on the actual behavior of households when data become available. The likely underrepresentation of very wealthy households in the sample is another limitation of this research as they are the main segment of the population that is affected by transfer taxation. In addition, information on respondents' children would have allowed us to examine the effect of bequest motives in more detail. Finally, given data limitations, our analysis is limited to looking at the effect of various factors on the probability of households opting for a particular response and we could not examine their effect on, for example, the amount of wealth reallocated toward their own consumption or *inter vivos* transfers as a result of the reduction in the basic deduction of the inheritance tax. In other words, unlike some previous work, it was not possible to examine whether households would take full advantage of opportunities to use *inter vivos* transfers as a way of reducing their children's tax bill.

Despite the above limitations, the findings of this paper have a number of important policy implications. First, our finding that relatively few households plan to reallocate the newly taxable amount of wealth to *inter vivos* transfers in response to the lowering of the basic deduction of the inheritance tax implies that bequest recipients (children) will have to pay more inheritance taxes as a result of the tax change, which will lower their after-tax inheritances and reduce the extent to which wealth is passed on from generation to generation. To the extent that one of the goals of the inheritance tax is to prevent the persistence of inequality across generations, our finding implies that this goal will be achieved, at least to some extent, by the revision of inheritance tax policy. However, this would critically depend on whether or not the likelihood of wealthier households to reallocate the taxable amount of wealth to *inter vivos* transfers is greater than that of the rest of the population. While our estimation results do not indicate such a tendency, further analysis with more detailed data would be required to reach a definitive conclusion.

Second, the fact that relatively few households plan to reallocate the newly taxable

amount of wealth to consumption or to *inter vivos* transfers in response to the lowering of the basic deduction of the inheritance tax also implies that this tax change, together with the creation of gift tax exemptions and the enhancement of the advantaged nature of the gift tax relative to the inheritance tax, will not necessarily have a very large stimulative effect on the economy, contrary to what the Japanese government may be hoping for. Given the relatively high share of saving for retirement and/or precautionary purposes in Japan, unless people can feel more secure about their life after retirement, they are unlikely to reduce their wealth to finance their own consumption or *inter vivos* transfers. Hence, expanding social safety nets and reducing people's sense of insecurity might be a better way of stimulating consumption and the economy as a whole than tinkering with wealth transfer taxes.

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