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How the Child Allowance Affects Household Expenditure

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【Abstract】

In this paper I have attempted to clarify the effects of "standard of living guarantee" and "child welfare" on households by employing equivalence scales used for the estimation of child cost. The estimation of child cost for each age group was described. The results indicated that the child cost increased linearly, peaking in households with high school children.

Then I tested the effect on household expenditure patterns by using actual measured values and estimated values of the child allowance. I verified certain effects, based on each model, on the standard of living, taking the Engel share as an index. On the other hand, the effect of the child allowance on the educational expense share is negative, suggesting that the cash provided is probably used for something other than educational expenses. Therefore, the effect on child welfare improvement remains unverified.

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I. Introduction

In Japan, many are worried that because the total fertility rate has continuously squeezed replacement-level fertility and the number of births has decreased,[1] the graying of the population structure will accelerate, and that this circumstance will have a significant effect on the general economy, social security, and the labor market. Japan offers an extremely thin veneer of social security for families, compared with other major countries of the Organisation for Economic Co-operation and Development (OECD). In addition, it has also been pointed out that the birth rates in Italy, Spain, Korea, and Japan, which have low household expenditures, are the lowest in the world,[2] and it is anticipated that these countries will shore up various social insurance policies targeting families.

According to Tsuya (2003), the social policies for families with small children involve (1) money, (2) time off, and (3) services.[3] However, it is also pointed out that Japan's child allowance and other allowances that provide financial support for child rearing are the lowest among developed nations, including English-language countries and the countries of Southern Europe. While many countries offer benefits until the age of 18 years, Japan currently offers benefits only up to the age of 12,[4] it requires proof of parental income, and the child allowance amount of 5,000 yen per child is extremely low by international standards.[5]

As Japan's birth rate continues to drop, future measures and policies related to child rearing and family are expected to be brought into parity with other developed countries. However, we need to

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[1] Among the copious literature on trends and factors in the birth rate, Date and Shimizutani (2004) summarized a broad swath of the literature in their empirical research.

[2] Katsumata, etc. (2005)

[3] Other classifications of family policies include Esping-Andersen and Korpi (1987), Gauthier (1996), McDonald (2004), and Ato (2005).

[4] This paper was written prior to the implementation of the child allowance in April 2010.

[5] Oshio (1999), Ato and Akaji (2003), and Fukuda (2003) included details of international comparisons of the child allowance. Also, Tsuya (2005) included a comparison of the annual amount of child allowances in Japan and Northern European countries by converting all to yen for easy reference.

keep in mind that these are micro-level measures for individuals and families, not macro-level population measures designed to increase the birth rate and affect the scale or composition of the population. This was agreed upon internationally at the International Conference on Population and Development (ICPD, the so-called Cairo Conference) held in 1994. In Japan, where serious social issues stemming from population decline are predicted, it is anticipated that the various forms of policy assistance for families will spill over and lead to a recovery of the birth rate without the birth rate standard itself becoming a policy aim.[6]

Thus, research concerns can be divided into two steps: the first is whether each system and policy is fulfilling its fundamental purpose; and the second is whether such systems and policies have actually led to an increase in the birth rate. This paper focuses on the research concerns of the first step by describing and measuring whether the change the child allowance benefit causes in the consumption structure of household expenditures contributes to the stability of family life and the rearing of children.[7]

Chapter II describes the purpose and shifts in, and provides a synopsis of, the child allowance system. Chapter III introduces a method for estimating the cost of rearing a child by applying an equivalence scale used in the preceding study, and further describes the measurement model that includes the effect of the child allowance benefit and the data used in the study. In Chapter IV, I estimate the cost of a child for households with children up through the middle school and high school years and discuss the age of children who are the target of the child allowance. Chapter V discusses the research on the effect of the child allowance benefit on the consumption structure of household expenditures, and also research on whether it fulfills the fundamental purpose of the system. Finally, Chapter VI includes my conclusion and a discussion of the tasks ahead.

II. Understanding the child allowance system

1. The purpose of the system

The Child Allowance Act, as of December of 2009, states that the purpose of the child allowance

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[6] Refer to Tsuda (2005) in "Conflict between Micro and Micro" regarding low-fertility policy. Also, refer to the United Nations Population Fund (1995, 2004) and Ato (1994) for details on the background and content of the ICPD Program of Action, and especially Satoh (2002, 2005), who wrote about the discussion on reproductive health and rights, which is an important concept.

[7] Due to limitations of space in this paper, I would like an opportunity to publish separately on the effects on infertility reflected in the concerns of the second step.

benefit is "to contribute to the stability of families by providing an allowance to those responsible for rearing children and also to contribute to the sound upbringing and training of children who will bear the burdens of society in the next generation."[8]

However, the new administration of the Democratic Party of Japan, elected in September of 2009, intends to create a new child allowance that will replace the traditional child allowance and redefine the purpose of such a policy as "to contribute to the growth and development of children who will bear the burdens of society in the next generation (along with reducing the financial burden related to the upbringing of children) by providing a child allowance to those tasked with rearing children."[9]

In either policy, the first half includes a "living-standard social security policy" intended to ease the financial burdens of households rearing children, and the second half includes a "child welfare policy" intended to ensure the healthy physical and mental development and upbringing of human capital (Sakaguchi 2004).[10]

Although it is not a direct purpose, as long as the current child allowance remains a part of a social insurance policy with an income requirement, there is expected to be a redistributive effect. Abe (2005) shows the amount of the child allowance benefit for each income class and points out that despite the income requirement the effect of income redistribution is weak due to the wide, yet thin, benefit. Abe (2003) also makes clear that the effect on income redistribution made by tax breaks for families with children under the age of 16 was stronger than the effect of the child allowance after systematic reform in 2000; either way, the effects are small.

2. Summary and evolution of the policy

The child allowance system was established in 1972, the "first year of social welfare." Chart 1 displays a synopsis of the system and its evolution. Through that evolution, the system has adapted to the demands of the times by changing the age range of targeted children, the income requirement for beneficiaries, and the benefit amount received. In the 1970s, the third child and subsequent

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[8] Child Allowance Act, Chapter 1, General Provisions (Article 1)

[9] Refer to the Legislative Bureau House of Councillors page, Democratic Party of Japan website. Sections in parentheses may be omitted.
http://www.dpj.or.jp/news/files/071226houan.pdf
[10] However, Takezawa (2006) and Shimazaki (2005) described the three purposes by dividing "child welfare policy" into children's "healthy upbringing" and "improvement of resources."

children thereafter were targeted to receive the child allowance benefit, an approach that had strong implications for income security policy aimed at preventing poverty in households with many children. When the Equal Employment Opportunity Act for Men and Women was implemented, the benefit was specified for households with infants at a time when the employment rate of mothers was remarkably low. After the 2000s, the government expanded the ages of children targeted for the benefit and eased the beneficiaries' income limit in order to socially apportion the household burden of child rearing in response to heightened expectations for child-rearing support.

The newly revised child allowance benefit was increased to a monthly amount of 16,000 yen, and then in incremental steps to 26,000 yen, without an income limit, and will be provided continuously until the targeted child completes compulsory education. Its main purpose is to reinforce support for households during the child-rearing stage.

＜Chart 1＞

III. Child cost and the equivalence scale

The first step in this research is concerned with examining the effect of the child allowance benefit on the "living-standard social security policy" and "improvement of child welfare," which represent its most fundamental purpose.

In this research I used the equivalence scale that is used in calculating the child cost and used the Engel food expense share to determine the effect on the living standard; further, I used the educational expense share to calculate the effect on the child welfare policy of using an educational expense share.[11]

Essentially, I should discuss estimates of child cost by taking into consideration not only the expense of rearing children, but also the utility of having children, the variability of satisfaction, and the psychological and mental burdens associated with child rearing. However, since by their very nature such estimates are complicated, most research treats "child cost as comparable to child-rearing expense." There are several methods in such cases: for example, there is the method of estimating child-rearing expense as the sum of actual expenditures, and there is the method of

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[11] Engel's food share method and Rothbarth's adult method provide the estimate equivalence scales. However, I employed the food share because of the limitation of the data. Also, I employed education expense as a proxy variable to indicate children's welfare. However, strictly speaking, education expense is not limited to consumption by children.

measuring it as time cost, but the most widely used method is the one with an equivalence scale, which estimates the child cost from the perspective of guaranteeing the prior standard of living, in consideration of the parents' living standards.[12]

2．Prior Research

In Japan, research on the estimate of child cost based on an equivalence scale has been carried out by Muto (1992), Suruga (1991, 1993, 1995), Suruga and Nishimoto (2001), Nagase (2001), Oyama (2004), and Takezawa (2006). Among them, Nagase (2001), Oyama (2004), and Takezawa (2006) used the number of children for each age group as the explanatory variable and did comparisons of the results.

Nagase (2001) focused on child cost in both short-term and long-term scenarios and estimated the short-term cost based on the Engel food share method, using the "Family Income and Expenditure Survey" conducted in 1995. The children's ages were divided into groups of 6 years and under, 7–13 years, and 14–22 years; the data formed a mountainlike shape, reaching a peak at 7–13 years and declining after 14 years.

Oyama (2004) employed the Rothbarth method to derive an equivalence scale using the "Japanese Panel Survey of Consumers" conducted from 1993 to 1999. The children's age groups were divided into 0–6 years, 7–13 years, and 14–18 years.

The use of the child cost estimate to examine the child allowance system is a touchstone for both my research and research done by Takezawa (2006). Takezawa calculated the equivalence scale derived from the Engel food share method by employing the "Family Income and Expenditure Survey" conducted in 2000, but then divided the children's age groups into 0 years, 1–2 years, 3–5 years, 6–8 years, 9–11 years, and 12 years. He concluded that about 30,000 yen per child was an appropriate amount, on the assumption that half the amount of the child cost calculated is the ideal amount for the child allowance.

3．Measurement model and estimation method

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[12] Refer to Suruga and Nishimoto (2001) and Takezawa (2006) for details about understanding child cost.

In the formulation below, *F* indicates food expense, including eating-out; *E* indicates educational expense; *C* indicates consumption expenditure; and *J* indicates the amount of child allowance given, following Tsakloglou (1991):

E or $F \diagup C = \alpha_0 + \alpha_1 \; lnC + \alpha_2 (\text{number of children by age group}) + \alpha_3 \; J + \alpha_4 (\text{other variables})$

The estimated food expense share reveals the following:

1. The child cost expressed by the equivalence scale $A = exp - \alpha_2 \diagup \alpha_1)$

2. The child allowance effect expressed by the equivalence scale $B = exp \; (-\alpha_3 \diagup \alpha_1)$

At first, I simply estimated the child cost derived by an equivalence scale without considering the child allowance, and made comparisons with prior research. As prior research had done, I made estimates employing a homeownership dummy that included imputed rent, a wife work dummy variable that includes imputed income from household work, and a residence dummy.

Next, I made estimates by adding an explanatory variable for the child allowance amount to previous estimates of child cost in order to measure the effect of the child allowance on the standard of living. To generate the estimate, I used two kinds of values to describe the child allowance value: the actual value measured by the Keio House Panel Survey (KHPS) and the value estimated from the system. Details about the estimation methods will be described in the following section. Furthermore, I generated estimates using the educational expense share as the explained variable to observe the effects on child welfare.

The estimate was made with the ordinary least-squares (OLS) approach using pooled data, a fixed-effect model utilizing the advantages of panel data, and a random-effect model. The fixed-effect model helped to remove the individual specific and unobservable effects and the effects of variables that were not time-dependent, by subtracting the differences of both sides of *t* period and *t* + 1 period. In addition, I used the random-effect model to make an estimate by the generalized least-squares (GLS) method on the assumption that the individual specific effect was a random variable that did not correlate with the explanatory variable.[13]

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[13] Baltagi, etc. (2005)

4．Data and calculation of child allowance

KHPS was first conducted in January 2004 and has continued until the present. The total number of those surveyed to date is 13,430. The collection rate is 29.8%. The subjects of the first survey included 2,000 males and 2,005 females 20 to 69 years old. New cohort, totaling 1,400, have been randomly selected and added to the survey in 2007, but only the continuous cohort from 2004 to 2008 was used for the household budget analysis in this chapter, owing to different sampling times.[14]

In the first survey, those 60 years or older and those with no spouse or child for five years were excluded, and only the married-couple households and nuclear households consisting of a father, mother, and children were included in the analysis.[15] The subject group was limited to households with children aged 18 or under for the purpose of estimating the child cost, and households with children aged 12 or under for analyzing the child allowance effect, as the children would not receive the benefit after the end of the sixth grade in elementary school.

In KHPS, the income from the child allowance was included in the social insurance expense. Thus, about 70% of eligible individuals should have received the benefit in fiscal year 2007, after excluding those measures that clearly included social security expense, on the assumption that child allowance = social security benefit – annual pension – unemployment benefit.[16] However, that only amounted to a value of about 10%. As Abe (2003) also pointed out, generally the social insurance expense has a tendency to be underreported. In addition, since the child allowance is deposited three times a year (February, June, October), there is a significant possibility that individuals are simply unaware when it has been deposited and therefore underreport when asked about "income obtained in the previous month."

Therefore, I made an estimate of the child allowance amount each household received and applied that number to my analysis. At first, I took the husband's income or the wife's income—whichever was higher—from the previous year as the income limit criterion, and then

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[14] Refer to Naoi (2008) for sample attributes.

[15] We used only nuclear households as survey subjects because having other dependent family members would have affected the estimation of the child allowance amount. Also, these are the same parameters as Takezawa's (2006). Nuclear households represent 77.3% of all households.

[16] According to "Fiscal year of 2007 Report on Child-care Allowance Project," there were 9,259,555 recipients of the child allowance among 12,979,569 who were eligible for the benefit.

specified the number of dependent relatives based on the number of children and the dependent relationship of the spouse. Since the income limit amount was changed, the question of a household's eligibility for child allowance was determined based on the annual income limit amount according to Chart 2(a) before 2005 and Chart 2(b) after 2006. The annual income limit amount was derived by adding the employment income exemption amount and the uniform exemption of 80,000 yen to the income limit amount (which is the conventionally used figure); from the data, it could not be determined whether there were any additional exemptions. The child allowance amount for households eligible for the benefit was calculated based on the number of children, the ages of the children, and their birth order.

Chart 3 indicates the rate of those estimated to have received a child allowance (the number of the households who received a child allowance divided by the number of households with children 12 years or younger). The estimated value captures 60% of the recipients, and so the value should be seen as reflecting the real rate of recipients.

＜Chart 2＞　　＜Chart 3＞

IV. Child cost for each age group and the ages at which a child allowance is payable

I first estimated the child cost, as previous research had done, prior to measuring the effect of child allowance, in order to find an equivalence scale.[17] Chart 4 shows the results. I compared the results with the findings of Takezawa (2006), Nagase (2001) and Oyama (2004), who calculated the value for each age group.[18]

The estimated coefficient is not significant among the age group 3–6 years old. However, all other age groups showed significant results. The age group 0–2 years scored less than 1 on the equivalence scale, a result that agreed with the research conducted by Takezawa (2006). This score can be attributed either to a decline in eating-out expense for those with infants, since the eating-out expense is included in the food expenses, as discussed in this paper, or to an increase in expenditure for various baby goods and clothing, the sizes of which change frequently during this period.

After this period, as the child ages, the burden increases—a 12.8% cost increase for 7–9 years, a

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[17] See Appendix Chart 1 for a statistical description.

[18] However, as mentioned earlier, Oyama (2004) employed the Rothbarth method.

16.8% increase for 10–12 years, 29.5% for 13–15 years, and 31.8% for 16–18 years. Takezawa (2006) and Nagase (2001), who employed the "Family Income and Expenditure Survey," concluded that child cost formed a mountainlike shape reaching a peak at 10–12 years old and declining thereafter, a conclusion that differs from the results of my research. However, Takezawa (2006) did not make an estimate for the 16–18-year-old group, and Nagase (2001) did not clarify the difference between households with middle-school-aged children, high-school-aged children, and college-aged children, with all ages ranging from 14 to 22 years combined into one broad age group. Also, Nagase's (2001) work differs from my research in not being limited to nuclear family data, and in controlling for the number of adult family members besides the couple. Oyama (2004) also divided the age groups rather broadly, into 7–13 years and 14–18 years, thus making no clear difference between middle-school-aged children and high-school-aged children.

<Chart 4>

As shown in Nagase's work (2001), the child cost based on the Engel-type equivalence scale, depending on measurement methods, shows likely declines among households with children 14–22 years old who are in middle school or high school. However, realistically speaking, it would be difficult to claim that the parents' living standard can be improved during this period, as child-rearing expenses, including expenses for food, education, and other things, increase as the children get older.[19]

In EU countries, the maximum age of children who are targeted by the child allowance system ranges from 16 years to 20 years. However, since as Chart 5 shows, many countries extend the payment period to cover the time a child is enrolled in an educational institution, it is quite clear that the child allowance amounts to a guarantee during the period that parents incur real financial burdens for the child.

Households with high-school-aged children can receive a financial benefit thanks to plans to expand the age range of children targeted for the child allowance, now elementary-school age (up to 12 years old), to include middle-school age (up to 15 years old).[20] At the same time, a further

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[19] Refer to Cabinet Office of Japan, "White Paper on the National Lifestyle 2005," Fig. 3-1-10, p. 130.
[20] Strictly speaking, this is rendered "the first March 31 following the day the child reaches the age of 15 years" in the Child Allowance Act, Chapter 1, General Provisions Article 3.

benefit comes from plans to eliminate high-school tuition. However, expenses other than tuition—such as transportation fees, material fees, expenses for uniforms, and expenses for extracurricular activities—are still placed squarely on the shoulders of parents, and given the expense of sending children to college, including tuition for cram school, summer courses at college preparatory schools, and the fees for mock exams, the burdens shouldered by parents increase even more.

<Chart 5>

V. How the child allowance affects household expenditure patterns

Chart 6 shows the results of testing performed on the Engel-type food expense share using KHPS actual measurement values of child allowance, and Chart 7 shows the results of testing conducted on the same share using estimated values of child allowance. Following Engel's Law, the higher the consumption expenditure, the more significant will be the decline in food expense share. Since the child allowance shows a strong correlation with the number of children in the younger cohorts, such as 0–2 years old and 3–5 years old, I used a number that includes all children, without dividing them into age groups, as the explanatory variable. The higher the number of children, the more significant is the increase in Engel share.[21]

Model 2 was derived by adding the variables of the homeownership dummy, wife's work dummy, and residence dummy, employed in estimating the child cost, to the model generated by the OLS estimate using only fundamental variables. The results of this model indicate that in the case of homeownership and a working wife, the food share is significantly high; further, the food share of such residences is higher compared with counties and villages.

To compare the fixed-effect model and the OLS-estimate model, I conducted an F-test using ui = 0 for individual specific effects of all individuals as the null hypothesis. As a result, the null hypothesis was rejected and the fixed effect was employed instead. Then, we conducted the Houseman formulation test by stipulating the correlation of the individual specific effect and explanatory variable $Cov(u_i, x_i) = 0$ as the null hypothesis in order to compare the fixed-effect model and the random–effect model. The null hypothesis was rejected and the fixed effect was

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[21] Even in measurements that use the number of children as a dummy variable, the number of children and food expense share are recognized as having a linear relationship.

employed instead.[22] The fixed effect was employed in the same way in the child allowance estimated value model (Chart 6) and the estimation of educational expense share (Chart 7 and Chart 8).

The actual value of almost all the models showed a negative effect stemming from the child allowance. When measured by the equivalence scale, there was a decrease in the Engel share by approximately 3% to 23%,[23] while a certain effect was seen in the maintenance of the standard of living. However, the fixed-effect model has not provided any significant coefficient. The effect of the child allowance estimated value in Chart 6 indicates that in the OLS model and the random-effect model, the effect of the child allowance is negative, while in the fixed-effect model, the child allowance has a modest yet significant positive effect. Taking into consideration unobservable household-specific consumption patterns as well as the results of the actual measurement value entirely mitigates the effect on the food share. This case shows that the standard of living cannot always be guaranteed by the child allowance; on the other hand, it also demonstrates the limitation of simply using the Engel food share as an index of living expense.

＜Chart 6＞　＜Chart 7＞

To observe the effects of the child allowance on "child welfare," which is the other aim of the child allowance, Chart 8 and Chart 9 show the results of an analysis using the educational expense share as the explained variable.[24] The academic background of parents has a strong effect on children's educational expenditure, and the educational expenditure notably increases among families with a mother who is better educated.[25] Thus, I used high school graduation as the mothers' last academic degree, which served as the reference category for the dummy variable.

The educational expense share as well as food expense share indicates negative as household expenditure increases. As the number of children increases, the educational expense share also increases, though it is not significant in the fixed-effect model employed in this test. Once again, when taking into consideration unobserved household-specific characteristics, such observations

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[22] The results of the F-test and the Houseman formulation test are noted in the estimation model in each chart.
[23] The equivalence scale is noted at the bottom of each model in Charts 6 and 7.
[24] When education expense rather than education expense share was made the explained variable, the positive or negative significance of the results obtained was unchanged.
[25] Tsuya and Choe (2004)

cannot be explained purely by the number of children.

The observed value of KHPS does not indicate any significant effect on education expense share in the fixed-effect and random-effect models. Further, the estimated value supports a negative effect on educational expense share in the OLS estimate and the random-effect model but fails to indicate any significant results in the fixed-effect model. The negative effect indicates that the child allowance provided probably is not spent on educational expenses but rather is used for other expenses and thus has no effect on the improvement of child welfare.

In previous research, Tanaka (2008) tested the relationship between the expansion of the child allowance and expenditure on and saving for children. The effects on "expenditure on children" and "saving for children" were not clear among households with children in the late elementary grades, who became eligible for the child allowance thanks to the 2006 reform of the system.

＜Chart 8＞　　＜Chart 9＞

VI. Conclusion and Future Issues

In Japan, with the inauguration of a new administration and its plans to establish the child allowance per its manifesto, debates have raged over the issue of financial support for the rearing of children. The primary cause of confusion on this issue is that in response to the demands of the times, the administration has changed "the aim" of the cash payment system called the child allowance under the banner of its original stated purpose (see Chart 1 for reference). The current child allowance focuses more on "achieving a society in which it is easier to bear and rear a child" against the backdrop of a reduced birth rate. However, it must first be admitted that such policies have not had a direct effect on improving fertility, thereby achieving their original purpose as laid out in the agreement at the Cairo Conference, but have rather come to be expected to improve fertility as a secondary effect.

In this paper I have turned to the essential purpose of the child allowance rather than its "aim," and have attempted to clarify the effects of "standard of living guarantee" and "child welfare" on households by employing equivalence scales used for the estimation of child cost. The estimation of child cost for each age group was described in Chapter IV. However, when households having children in middle school or high school were included among the subjects, the results indicated

that the child cost increased linearly, peaking in households with high school children.

Beginning in the 1970s, the child allowance benefit was provided to households with infants as an antipoverty measure to help households with many children. This provision was due to efforts to target primarily households having infants with mothers who had difficulty finding employment, efforts that reflected societal trends aimed at a gender-free society that would enable full participation by both men and women, trends that started in the last half of the 1980s. However, the fact is that people do not spend much money on infants or elementary school children. Judging from the standpoint of the original purposes of "guaranteeing a standard of living" and "child welfare," the households who really need financial support for rearing children are surely the ones with children in their late teens, who have completed compulsory education and need food, clothing, and shelter as much as adults do, as well as school tuition and a variety of experiences for expanding their sphere of activities. In Japan, the age of children eligible for the child allowance is still low when compared with ages in EU countries.[26]

In Chapter V, I tested the effect on household expenditure patterns by using actual measured values and estimated values of the child allowance. I verified certain effects, based on each model, on the standard of living, taking the Engel share as an index. On the other hand, the effect of the child allowance on the educational expense share is negative, suggesting that the cash provided is probably used for something other than educational expenses. Therefore, the effect on child welfare improvement remains unverified. However, there is a drawback in that the educational expense variable used in the estimation is not limited to children. Therefore, I are planning to conduct a survey containing additional survey items, such as educational expenses, educational entertainment costs, and clothing and shoe costs only for children, in order to re-verify the results found in this study.[27]

Full-scale policies for families were available only in developed countries in the West, and attempts at such policies in Japan preceded attempts in other Asian countries, which had traditional familistic cultures. At a time of radical reform such as this, it is necessary, going forward, to continue carefully verifying the effects on household expenditure patterns and birth rates.

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[26] The child allowance is provided only through junior high school. The educational expense burden shouldered by a household for a high school student is reduced by free high school education. However, this does not cover the increased portion of the child's living expenses.

[27] This will be conducted as "Japan Household Panel Survey" and sponsored by Keio University.

＜Appendix Table 1＞

Acknowledgments

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Chart 1. Change in child allowance

Main aim	System change year	Targeted children	Recipient's income limit amount	Allowance amount
Poverty prevention for households with many children	1972	After the third child, through the end of middle school	2000,000 yen	3,000 yen
	1974	"	3220,000 yen	4,000 yen
	1975	"	415,0,000 yen	5,000 yen
Income security for households with infants	1986	The second child until 2 years old; the third child and subsequent children until the end of middle school	3406,000 yen (5589,000 yen)	2,500 yen (the second child), 5,000 yen (after the third child)
	1992	The first child and subsequent children, 3 years old or under	gradually increases	5,000 yen (The first and second child), 10,000 yen (after the third)
Child support	2000	After the first child and subsequent children finished preschool		"
	2001	"	5963,000 yen (7800,000 yen)	"
	2004	After the first child, through the end of the third year of elementary school	"	"
	2006	After the first child, through the end of the sixth grade of elementary school	7800,000 yen (8600,000 yen)	"
	2007	"	"	5,000 yen (the first and second), 10,000 yen (the third child and subsequent children) except 10,000 yen flat for under 3 years old
Child allowance	2010	After the first child, through the end of middle school	None	13,000 yen (half of the full amount—26,000 yen—implemented)

Note 1. Prepared with reference to Oshio (1996), Child allowance system study group (2004), Shimazaki (2005), Abe (2003), Takezawa (2006), and Ministry of Health, Labour and Welfare (2008)

Note 2. The income limit amount is for three independent family members after 1986, and prior to then five members

Note 3. The income limit amount in ( ) is a case of special benefits and targeted for employee pension subscriber households.

Chart 2. Annual income limit amount for child allowance payment (unit: 10,000 yen)

(a) Fiscal year 2001–2005

Number of dependent family	National pension subscriber		Employee pension subscriber	
	Income amount	Annual income base	Income amount	Annual income base
0	301	453.8	460	652.5
1	339	501.3	498	695.6
2	377	548.8	536	737.8
3	415	596.3	574	780.0
4	453	643.8	612	822.2
5	491	687.8	650	864.4
6	529	730.0	688	906.7
7	567	772.2	726	948.9

(b) From fiscal year 2006 to present

Number of dependents	National pension subscriber		Employee pension subscriber	
	Income amount	Annual income base	Income amount	Annual income base
0	460	652.5	532	733.3
1	498	695.6	570	775.6
2	536	737.8	608	817.8
3	574	780.0	646	860.0
4	612	822.2	684	902.2
5	650	864.4	722	944.4
6	688	906.7	760	986.7
7	726	948.9	798	1028.9

Note 1. The annual income base is the sum of the employment income exemption amount and the flat exemption of 80,000 yen.

Note 2. The shaded area is the value used as the standard value (couple plus 2 children).

Note 3. The annual income base of (a) is applied to the data for years 2004–2006; the annual base limit amount of (b) is applied to the data for years 2007–2008.

(Unit: %) Chart 3. The recipient rate of child allowance based on number of children for each number of children

Number of children	Panel 1 (2004)	Panel 2 (2005)	Panel 3 (2006)	Panel 4 (2007)	Panel 5 (2008)
1	15.2 (29.2)	10.0 (39.3)	5.1 (36.6)	6.9 (65.2)	7.8 (62.9)
2	20.9 (36.9)	11.6 (49.4)	12.6 (55.5)	11.7 (64.5)	10.4 (66.1)
3	14.3 (49.5)	10.5 (46.5)	12.6 (55.9)	6.5 (61.5)	9.2 (60.2)
4	50.0 (50.0)	— (57.1)	40.0 (62.5)	20.0 (62.5)	20.0 (77.7)

Note 1. Recipient rate = Recipient household number/the number of households with children 12 years old or younger.

Note 2. The top is KHPS actual measured value, the bottom (in parentheses) is the recipient rate with estimated value.

Chart 4. Estimated results of child cost

KHPS 2004–2008 : Households with children 18 years old or younger

Explained variable :	Food expense share			Equivalence scale						
	OLS (Pool data)			Kobayashi (2009)	Takezawa (2006)	Nagase (2001)		Oyama (2004)		
	Coefficient	t value		KHPS	Household Budget Survey	Household Budget Survey		JPSC		
(consumption expenditure	−0.058	−16.43	***							
umber of children: 0–2 yea	−0.012	−4.53	***	0.813	0.951					
: 3–6 years	0.001	0.05		1.017	1.088	1.080	ears old and youn	1.124	ears old and younger)	
: 7–9 years	0.007	2.56	*	1.128	1.104	1.254	(7–13 years old)	1.126	(7–13 years old)	
: 10–12 years	0.009	2.91	**	1.168	1.277					
: 13–15 years	0.015	4.46	***	1.295	1.261	1.249	(14–22 years old)	1.260	(14–18 years old)	
: 16–18 years	0.016	4.49	***	1.318	—					
Homeownership dummy	0.025	8.22	***							
Employed wife dummy	−0.003	−1.02								
Residence: counties and	—	—								
: other cities	0.007	1.67	#							
: metropolitan cities	0.009	1.98	*							
2004 dummy	—	—								
2005 dummy	0.003	1.18								
2006 dummy	0.008	2.96	**							
2007 dummy	0.006	2.08	*							
2008 dummy	0.008	2.62	**							
N	4120									
R^2	0.142									

***0.1% significance、 **1% significance、 *5% significance、 #10% significance

Note 1. The food expense value includes eating–out expense.

Note 2. Takeda (2006) is based on estimate 1 of Chart 3, Nagase (2001) is based on food share in Chart 2–1, and Oyama (2004) is based on random effect 2 of Appendix Chart 1.

Note 3. Oyama (2004) done by Rothbarth method. Explained variable is the expenditure amount for the husband plus the expenditure amount for the wife.

Chart 5. The ages of children targeted for child allowance payment in EU countries

until 16 years old	Netherlands (18 years old), Ireland (19 years old), Sweden (19 years old), Portugal (25 years old)
Until 17 years old	Finland
Until 18 years old	Norway, Denmark, Italy, Spain, Belgium (25 years old), Germany (27 years old), Australia (26 years old), Greece (22 years old), Luxembourg (27 years old)
Until 20 years old	France

Note 1. For a child in an educational institution, possible to extend to the age in ( ).

Note 2. Created in reference to Oshio (1999) and Fukuda (2003)

Chart 6. The effect of the child allowance (KHPS actual measurement value) on Engel coefficient

KHPS 2004-2008：Households with children 12 years old or younger

Explained variable: Food expense share

	Model 1 OLS (Pool Data)			Model 2 OLS (Pool Data)				Model 3 Fixed-Effect Model			Model 4 Random-Effect Model		
	Coefficient	t value		Coefficient	t value			Coefficient	t value		Coefficient	t value	
ln (consumption expenditure	−0.050	−11.58	***	−0.052	−12.05	***	ln (consumption expenditure	−0.100	−20.04	***	−0.070	−19.61	***
Child allowance (actual value	−0.013	−5.08	***	−0.011	−4.32	***	Child allowance (actual measured	−0.003	−1.23		−0.006	−2.65	**
Number of children	0.010	4.900	***	0.008	3.98	***	Number of children	0.021	3.91	***	0.011	6.11	***
Homeownership dummy				0.028	7.65	***	Homeownership	0.031	4.34	***	0.032	9.37	***
Employed wife dummy				0.004	1.24		Employed wife	−0.002	−0.55		0.002	0.77	
Residence: metropolitan cities				0.007	1.13		Residence	0.004	0.43		−0.003	−1.23	
: other cities				0.007	1.25		N	2569			2569		
: counties and villages				—			Group N	1003			1003		
2004 dummy	—			—			Within R²	0.220			0.021		
2005 dummy	0.003	0.92		0.003	0.8		Between R²	0.100			0.117		
2006 dummy	0.009	2.60	**	0.007	2.11	*	Overall R²	0.110			0.124		
2007 dummy	0.005	1.23		0.003	0.7		Equivalence scale	0.970			0.918		
2008 dummy	0.007	1.78	#	0.004	1.03								
N	2587			2569			F-test				Houseman formulation test		
R²	0.089			0.129			F(1002, 1560) = 2.89				chi²(6) = 89.37		
Equivalence scale Note1)	0.771			0.809			prob > F = 0.0000				prob > chi² = 0.0000		

***0.1% significance、**1% significance、*5% significance、#10% significance

Note 1. Calculated based on the child allowance coefficient

Chart 7. Effect of child allowance (estimated value) on Engel coefficient

KHPS 2004-2008：Households with children 12 years old and younger

Explained variable: Food expense share

	Model 1 OLS (Pool Data)			Model 2 OLS (Pool Data)				Model 3 Fixed-Effect Model			Model 4 Random-Effect Model		
	Coefficient	t value		Coefficient	t value			Coefficient	t value		Coefficient	t value	
ln (consumption expenditure)	−0.053	−13.83	***	−0.055	−14.29	***	ln (consumption expenditure	−0.100	−24.18	***	−0.073	−23.03	***
Child allowance (estimated value)	−0.016	−6.44	***	−0.014	−5.53	***	Child allowance (estimated valu	0.008	3.32	***	−0.004	−1.96	**
Number of children	0.015	8.22	***	0.013	7.06	***	Number of children	0.016	3.88	***	0.014	7.61	***
Homeownership dummy				0.027	8.02	***	Homeownership	0.028	4.97	***	0.032	10.29	***
Employed wife dummy				0.007	2.62	**	Employed wife	−0.002	−0.52		0.004	1.68	#
Residence: metropolitan cities				0.010	1.98	*	Residence	−0.001	−0.13		−0.005	−2.00	*
: other cities				0.009	2.04	*	N	3325			3325		
: counties and villages				—			Group N	1077			1077		
2004 dummy	—	—		—	—		Within R²	0.223			0.211		
2005 dummy	0.005	1.60		0.004	1.39		Between R²	0.008			0.117		
2006 dummy	0.010	3.34	**	0.008	2.68	**	Overall R²	0.098			0.124		
2007 dummy	0.009	2.64	***	0.006	1.66	#	Equivalence scale	1.082			0.947		
2008 dummy	0.015	4.08	***	0.010	2.76	**							
N	3349			3325			F-test				Houseman formulation test		
R²	0.097			0.136			F(1076, 2242) = 3.36				chi²(6) = 148.73		
Equivalence scale note1)	0.739			0.775			prob > F = 0.0000				prob > chi² = 0.0000		

***0.1% significance、**1% significance、*5% significance、#10% significance

Note1. Calculated based on child allowance coefficient

Chart 8. The effect of child allowance (actual measured value) on educational expense share

KHPS 2004–2008：Households with children 12 years old or younger

Explained variable：Educational expense share

	Model 1			Model 2				Model 3			Model 4		
	OLS (Pool Data)			OLS (Pool Data)				Fixed-Effect Model			Random-Effect Model		
	Coefficient	t value		Coefficient	t value			Coefficient	t value		Coefficient	t value	
ln(consumption expenditure)	−0.005	−0.80		−0.007	−1.24		ln(consumption expenditu	−0.041	−7.83	***	−0.019	−4.84	***
Child allowance (actural measuring value)	−0.005	−1.68	#	−0.003	−0.96		Child allowance (actual measure	0.006	1.64		0.001	0.24	
Number of children	0.014	5.86	***	0.015	6.08	***	Number of children	0.004	0.48		0.013	5.12	***
Homeownership dummy				0.029	6.13	***	Homeownership	0.013	1.47		0.030	6.84	***
Employed wife dummy				0.008	1.89	#	Employed wife	0.006	1.28		0.010	1.69	#
Residence: metropolitan cities				0.017	2.12		Residence	0.004	0.36		−0.007	−2.24	*
: other cities				0.007	1.07		N	2140			2140		
: counties and villages				—		*	Group N	82			820		
Mother's educational background: high school				—			Within R^2	0.05			0.030		
: technical college or junior college				0.018	3.59	***	Between R^2	0.001			0.060		
: 4 years college or more				0.026	3.38	***	Overall R^2	0.009			0.060		
2004 dummy	—			—									
2005 dummy	−0.003	−0.60		−0.004	−0.83		F-test				Houseman formulation test		
2006 dummy	−0.010	−2.45	**	−0.012	−2.97	*	F(819, 1314) = 3.09				chi^2(6) = 54.12		
2007 dummy	−0.011	−2.67	**	−0.015	−3.48	***	prob > F = 0.0000				prob > chi^2 = 0.0000		
2008 dummy	−0.004	−1.05		−0.010	−2.19	*							
N	2150			1976									
R^2	0.027			0.086									

***0.1% significance、 **1% significance、 *5% significance、 #10% significance

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Chart 9. The effect of the child allowance (estimated value) on educational expense share

KHPS 2004–200：Households with children 12 years old or younger

Explained variable：Educational expense share

	Model 1			Model 2				Model 3			Model 4		
	OLS (Pool Data)			OLS (Pool Data)				Fixed-Effect Model			Random-Effect Model		
	Coefficient	t value		Coefficient	t value			Coefficient	t value		Coefficient	t value	
ln(consumption expenditure)	−0.006	−1.17		−0.010	−1.82	#	ln(consumption expenditu	−0.039	−8.59	***	−0.020	−5.60	***
Child allowance (estimated value)	−0.011	−3.61	***	−0.009	−2.87	**	Child allowance (estimated v	−0.002	−0.56		−0.008	−3.68	***
Number of children	0.016	6.74	***	0.016	6.73	***	Number of children	0.003	0.39		0.014	5.95	***
Homeownership dummy				0.024	5.91	***	Homeownership	0.009	1.31		0.025	6.40	***
Employed wife dummy				0.010	2.67	**	Employed wife	0.007	1.88	#	0.008	2.70	**
Residence: metropolitan cities				0.014	1.89	#	Residence	0.007	0.88		−0.005	−1.85	#
: Other cities				0.009	1.38		N	2793			2793		
: counties and villages				—			Group N	897			897		
Mother's educational background: high-school				—			Within R^2	0.042			0.026		
: technical school or junior collage				0.018	3.87	***	Between R^2	0.001			0.064		
: 4 years college or more				0.026	3.74	**	Overall R^2	0.005			0.059		
2004 dummy	—			—									
2005 dummy	−0.001	−0.04		−0.001	−0.38		F-test				Houseman formulation test		
2006 dummy	−0.006	−1.65	*	−0.008	−2.48	**	F(896, 1890) = 3.41				chi^2(6) = 62.22		
2007 dummy	−0.003	−0.83		−0.008	−2.16	*	prob > F = 0.0000				prob > chi^2 = 0.0000		
2008 dummy	0.001	0.23		−0.005	−1.35								
N	2808			2587									
R^2	0.03			0.083									

***0.1% significance、 **1% significance、 *5% significance、 #10% significance

Appendix Chart 1. Statistical description (KHPS 2004-2008)

	N	Average	Standard Deviation	Minimum Value	Maximum Value		
Child allowance (estimated value)	5325	0.31	0.56	0	4		
General expenditure	4844	32.30	21.65	3.7	728.1		
Food expense	5080	7.16	3.94	0	59.7		Unit: 10,000 yen
Educational expense	5021	3.02	6.59	0	135		
Number of children	5325	1.76	1.01	0	6		
Number of children: 0-2 years	5325	0.30	0.56	0	3		
: 3-6 years	5325	0.35	0.59	0	3		
: 7-9 years	5325	0.25	0.47	0	2		
: 10-12 years	5325	0.23	0.46	0	2		
: 13-15 years	5325	0.21	0.45	0	2		
: 16-18 years	5325	0.20	0.44	0	2		
Homeownership dummy	5280	0.67	0.47	0	1		
Employed wife dummy	5068	0.58	0.49	0	1		
Residence: counties and villages	5324	0.14	0.34	0	1		
: other cities	5324	0.59	0.49	0	1		
: metropolitan cities	5324	0.27	0.44	0	1		
Wife's educational background: high-school	4689	0.55	0.50	0	1		
: technical college and junior college	4689	0.30	0.46	0	1		
: more than 4 years college	4689	0.16	0.36	0	1		
2004 dummy	5325	0.28	0.41	0	1		
2005 dummy	5325	0.22	0.45	0	1		
2006 dummy	5325	0.19	0.41	0	1		
2007 dummy	5325	0.20	0.39	0	1		
2008 dummy	5325	0.15	0.35	0	1		