

Effects of Child-related Benefits in Japan*

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1. Introduction

Japan, as in many industrialized countries, offers a variety of child-related benefits to families with children. The Child Rearing Allowance (CRA) for single mothers and the more universal Child Allowance (CA) are the two means-tested cash transfers directly targeting families with children. Public Assistance for the Poor (Seikatsu-Hogo) is another type of cash benefit available to very poor families with children. In the tax system, dependent exemption offers a sizable reduction in the taxable income, and thereby tax relief. Lastly, public childcare at a subsidized fee is a substantial in-kind benefit to those working families with no one to take care of children at home. In addition, many municipalities also offer free health care for infants and toddlers.

These in-cash and in-kind benefits undoubtedly help households with children. However, surprisingly little is known about the effect of these child-related benefits. For example, most in-cash benefits such as the Child Allowance require an applicant to file an application at a local municipal office. Those who are unfamiliar with the system or those who refrain from contacting a municipal office do not receive the benefit. Nevertheless, there has been no study to estimate the take-up rate of these benefits until now. Moreover, there has been relatively little work on measuring the effect of child-related benefits on poverty rate, inequality, and child well-being.

This paper uses micro data from the 1996 *Survey on the Redistribution of Income* conducted by the Ministry of Health, Labor and Welfare to analyze and estimate the impact of the in-cash child-related benefits to families with children¹. Then, it conducts a logistic analysis to assess whether factors such as mother's working status, household income, and mother's age have any effect on the probability of the household receiving child benefits.

A note of caution on the terminology: In Japan, the term "social security" is used to refer to the public pension system, public health care system, Child Allowance, Child Rearing Allowance, and all other in-cash benefits, as well as long-term care for the elderly, public childcare services, and other in-kind services. In this pa-

per, the term "child benefit" is used to refer to the Child Allowance, the Child Rearing Allowance, and the Disabled Child Allowance. The term "transfer" is used to refer to in-cash net-transfer from social security systems. This includes both positive transfers (pensions, various allowances, etc.) and negative transfers (social security premiums for pension and health). "Dependent deduction benefit (or dependent deduction)" is used to refer to the reduction in tax liability arising from a deduction for dependent children².

2. Description of Child-related Benefits in Japan

2.1 Child Allowance

The Child Allowance is a means-tested in-cash transfer to households with children aged 6 years or younger. Established in 1972, the Child Allowance initially covered only the third child and subsequent children below 18 years of age. In 1988, it was extended to cover the second child, and in 1994, all children, but with the age restriction that it was available only for children below 3 years of age. Recently in June 2000, the restriction on the children's age was raised from 3 years of age to 6 years of age, thus greatly expanding the coverage of children.

The amount of the Child Allowance is minimal compared to that of similar benefits in European countries. It is currently 5,000 yen per month for the first two children and 10,000 yen for the third child and subsequent children³. The income threshold is set at two levels: one for employees and a slightly lower one for the self-employed.⁴ Both are scaled according to the number of dependents—including not only children, but spouse, parents, and other members of the family, if they meet the income criteria—in the household. For 2002, the threshold is as in Table 1.

Receipt of the Child Allowance is not automatic. In order to receive it, a parent or guardian must file an application at a local municipality office, or in the case of public employees, with their employer. The eligibility of the applicant is then evaluated by the municipality, or the

employer, and the applicant's previous year's income after deductions is compared to the threshold. Every year, A recipient of the Child Allowance must submit a Notice of Current Situation to the municipality in order to continue receiving the allowance.

In 1999, approximately 2,165 thousand households with 2,407 thousand children received the Child Allowance. Figure 1 shows the percentage of children who received the Child Allowance (benefit rate) in 1986-1999. Among children under 18 years old, there is an increase up to 1988-89 when coverage was extended to the second child, and then a gradual decline. The downward trend continues even after 1994 when coverage was extended to all children, although it should be noted that there has been a slight reverse in the trend since 1998. Among children under 3 years old, nearly 68% received the allowance. Between 1994 and 1999 the age limit of the Child Allowance remained the same, yet Figure 1 shows quite a fluctuation in the benefit rate between 1994 and 1999.

One plausible cause for the fluctuation of the rate

of children receiving the allowance is the change in the income threshold. Figure 2 shows the income thresholds for the years from 1986 to 2001. After 1994 there was a big drop in the threshold; however, from 1994, the threshold remained more or less stable until 1999. Thus, the change in income threshold cannot account for the fluctuations in the benefit rate in Figure 1.

2.2 Child Rearing Allowance

The Child Rearing Allowance is provided to a mother or a guardian having custody of and rearing a child under 18 years of age who does not share a common household income with the child's father and whose income is below a certain threshold. As with the Child Allowance, an applicant must file an application for the Child Rearing Allowance at a local municipality office, and every year, submit a Notice of Current Situation in order to continue receiving the allowance.

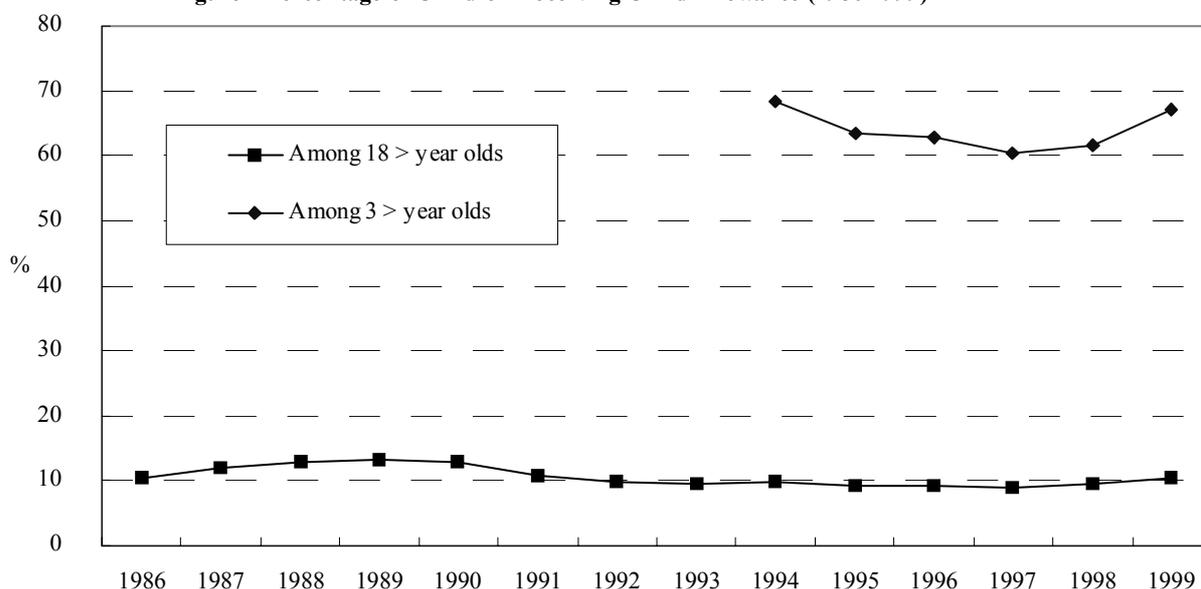
The amount of the Child Rearing Allowance is two-tiered. The full amount is 42,370yen per month for one

Table 1 Income Threshold for Child Allowance & Child Rearing Allowance in 2002
(unit: 1,000 yen/year)

| Number of Dependents | Child Allowance | | Child Rearing Allowance | |
|----------------------|-----------------|-----------|-------------------------|---------|
| | Non-Employees | Employees | Full | Partial |
| None | 3,090 | 4,680 | 458 | 1,540 |
| One | 3,470 | 5,060 | 904 | 1,920 |
| Two | 3,850 | 5,440 | 1,326 | 2,300 |
| Three | 4,230 | 5,820 | 1,748 | 2,680 |
| Four | 4,610 | 6,200 | 2,170 | 3,060 |

Source: MHLW

Figure 1 Percentage of Children Receiving Child Allowance (1986-1999)



child, 47,370yen per month for two children, and for each additional child, 3,000yen. The partial amount is 28,350yen per month for the first child, 33,350yen for two children, and for each additional child, 3,000yen. The eligibility for the allowance is based on the income of the mother or the guardian. The income threshold for the full and partial Child Rearing Allowance is as follows. The mother's income after deductions is compared to the threshold to determine the eligibility.

In 2000, there were approximately 141 thousand people taking care of 145 thousand children who received the Child Rearing Allowance. This means that about 4.7%

of all children under 18 years of age received the benefit. Figure 3 shows the benefit rate of children aged 0-17 years who received the Child Rearing Allowance in 1986 to 2000. Even though the income threshold was reduced significantly in 1998 (Figure 4), there has been a continuous upward trend reflecting the increase in divorces and children born out of wedlock⁵.

2.3 Child Tax Benefits

Another benefit available to the households with children is the deductions for dependents in the tax code. It

Figure 2 Income Threshold of Child Allowance for 4-person households (1986-2001)
(Unit: 10,000 yen in nominal terms)

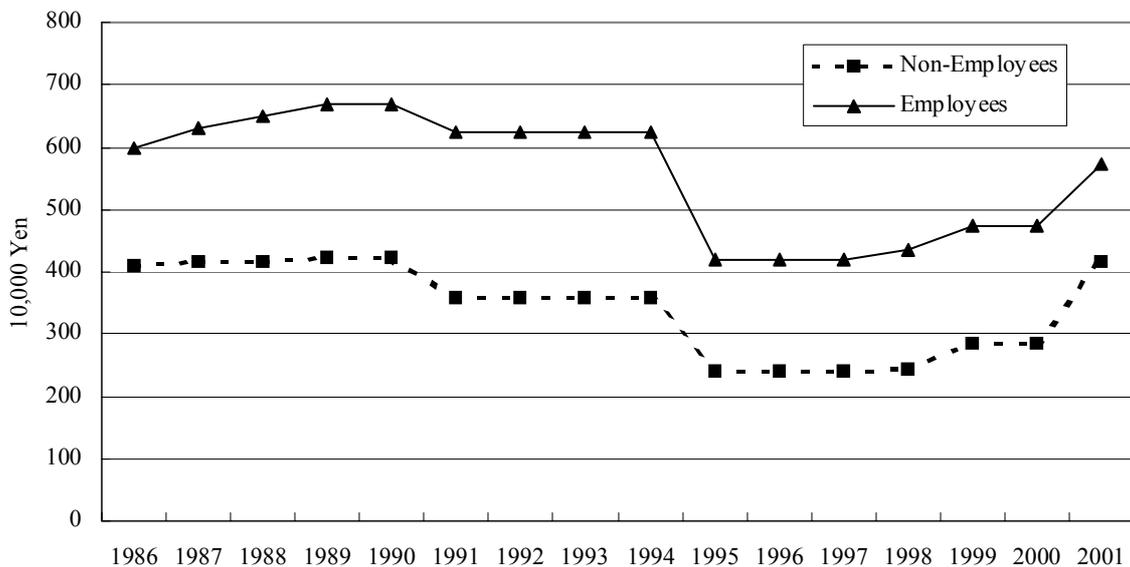
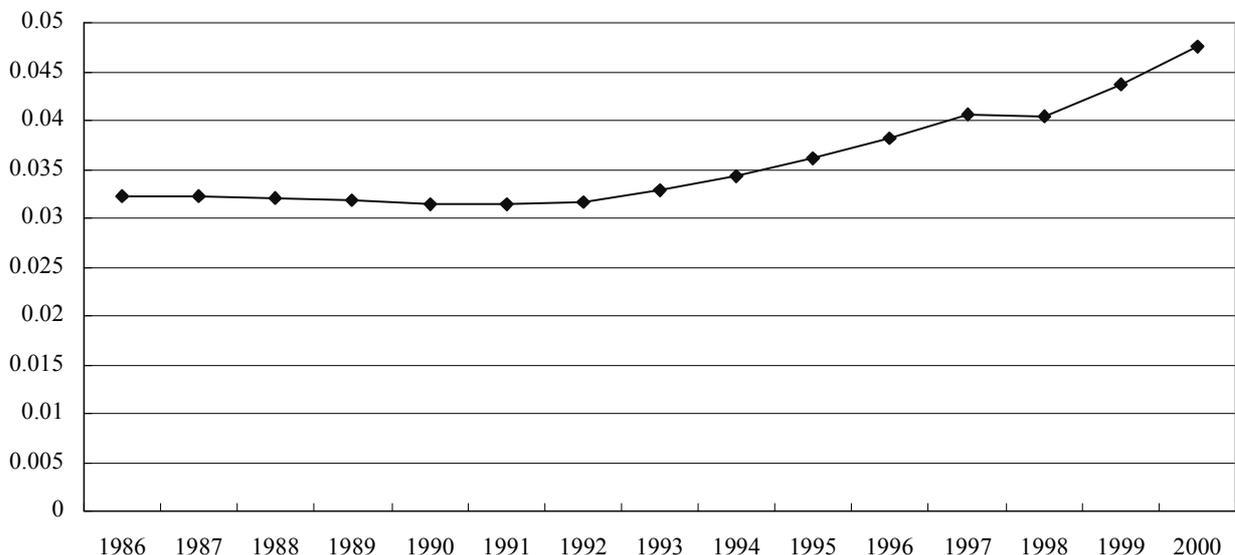


Figure 3 Percentage of Children under 18 receiving Child Rearing Allowance (1986-2000)



is an income deduction, rather than a tax deduction, and is not refundable. The deduction is ¥380,000 for each dependent aged below 15 years of age and ¥630,000 for each dependent aged between 16 and 22 years. The actual benefit to the household is the tax rate times the deduction amount and the benefit is thus larger for households in higher tax brackets.

2.4 Other In-cash Benefits for Households with Children

Public Assistance for the Poor (Seikatsu-Hogo) is another in-cash benefit available to households with children when their household income falls below the minimum standard of living. The calculation of the minimum standard of living depends on a number of factors including household size, ages of household members, and location of residence. Statistics on how many households with children received the Public Assistance are not readily available, but in 1999, 58 thousand single-mother households, about 8.3% of all households receiving the Public Assistance, received the assistance.

There are a number of other in-cash benefits that are more specifically targeted, such as those for households taking care of handicapped children. These benefits reach only a relatively small number of households and thus will not be discussed in this paper.

3.Data and Methodology

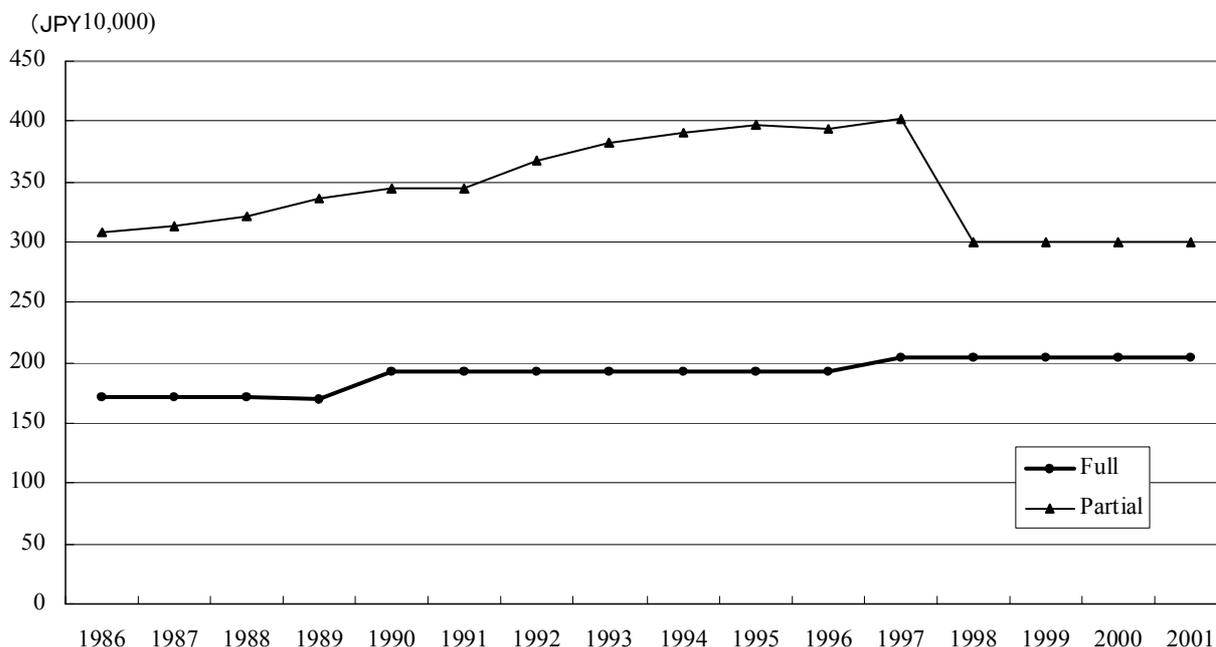
3.1 Data

The data used for this paper is the 1996 *Survey on the Redistribution of Income* (Shotoku Saibunpai Chosa, herein after the Redistribution Survey or the Survey), which is conducted by the Ministry of Health, Labor and Welfare . The Survey is conducted every three years in conjunction with the *Basic Survey on People's Life*. The sample size is 8,152 households with over 24,789 individuals, among them 5,674 children. It contains both public and private in-cash transfers as well as income, taxes, social insurance premiums, and doctors' visits for each individual in the household. The Redistribution Survey contains data on child-related in-cash transfers such as Child Allowance, Child Rearing Allowance, and Disabled Child Allowance; however, the three kinds of benefits are aggregated and individual amounts for each are not available.

3.2 Methodology

First, using information on each household member, the eligibility of child benefits and dependent deductions for children for each household are estimated (see Appendix A for details). Second, to estimate the effect of child benefits and dependent deductions for children on the poverty and inequality rates among households with children, the poverty rates and the Gini coefficients at differ-

Figure 4 Income Threshold of Child Rearing Allowance for 2-person Households (1986-2001)



ent stages of income were calculated: (a) the market income, (b) post-tax income where no income deductions for children were accounted for, (c) real post-tax income, (d) post-tax-transfer income without child benefits and (e) post-tax-transfer income with child benefits (i.e., disposable income). The child benefits include Child Allowance, Child Rearing Allowance, and Disabled Child Allowance. The transfers include all in-cash social security transfers including old-age pension, disability pension, and child benefits.

The poverty rate is defined as the percentage of households whose adjusted household income is less than 50% of the median of adjusted post-tax-transfer income (disposable income: DPI, not including services) within each sample. Likewise, the child poverty rate is defined as the percentage of children belonging to households with less than 50% of median adjusted DPI.

The paper uses the equivalence scale commonly employed by the OECD to adjust household income for different household sizes. The formula is as follows:

$$AI = I / ((n - c + (c * 0.7)) ** 0.7);$$

AI = Adjusted household income
 I = Household income
 n = Number of household members
 c = Number of children

3.3 Take-up Rate

First, using the data on the receipt of child benefits, the take-up rate of child benefits is calculated as below:

$$\text{Take-up rate of child benefits (\%)} = \frac{\# \text{ households that received child benefits}}{\# \text{ households estimated to be eligible for Child Allowance or Child Rearing Allowance}^6}$$

Table 2 shows the results of the calculation of the take-up rate for the child benefits, calculated from the data in the 1996 Redistribution Survey. The rate is much lower than the official figures. Comparing the percentage of children under 3 years of age who received the Child Allowance alone (Figure 2) and the percentage of children who received any child benefit (Table 1), the difference is nearly threefold, at 63% and 20% respectively. It has been noted that the Redistribution Survey captures the lower-end of income strata better, but if that is the case the take-up rate should have been higher, not lower, than the official rate. This gives rise to a suspicion that the child benefit, especially the Child Allowance, is grossly underreported in the Redistribution Survey⁷.

To compensate for the possible underreporting of child benefits, the paper uses both the child benefit amount as reported in the Redistribution Survey and the estimated Child Allowance and Child Rearing Allowance calculated from the household's income and the number of qualified children (estimated child benefit). Thus, the estimated child benefit assumes a 100% take-up rate, although the real figure is expected to lie somewhere between the reported

Table 2 Take-up Rate of Child Related Benefits in 1996 Survey on Redistribution of Income

| By number of households | Sample size | Received Child | |
|--|-------------|----------------|-----|
| | | Allowance | (%) |
| Households with children aged < 3 | 860 | 165 | 19% |
| Households under income threshold* | 778 | 158 | 20% |
| Employees | 594 | 126 | 21% |
| Self-Employed | 184 | 32 | 17% |
| All Single-mother households | 94 | 47 | 50% |
| Households under income threshold* | 90 | 46 | 51% |
| By number of children | | | |
| All children aged < 3 | 1025 | 209 | 20% |
| Under income threshold* | 924 | 199 | 22% |
| Employee household | 714 | 158 | 22% |
| Self-Employed household | 210 | 41 | 20% |
| Children in Single-mother households aged < 18 | 161 | 91 | 57% |
| Under income threshold* | 154 | 90 | 58% |

Note : Child Related Benefits = Child Allowance, Child Rearing Allowance, Disabled Child Allowance, etc.

For single-mother households, both Child Allowance and Child Rearing Allowance are taken into consideration.

* Income threshold for Child Allowance.

Source: calculation by author from 1996 Redistribution Survey

figure and the estimated figure.

4.Result

4.1 Effect on the Poverty Rate

Table 3 shows the household poverty rate and the child poverty rate for four categories of households: namely, all households, households with children under 3 years of age⁸, households with children under 20 years of age, and single-mother households. The sample sizes were 8,152, 860, 3,178, and 94 respectively. The sample size of single-mother households is much smaller than others, and thus, the results should be taken with caution.

The poverty rate at the market income (a) is fairly high for single-mother households at 23.4% (26.2% of children) and for “All households” at 22.7% (11.0% of children). Households with small children are relatively better off compared to other households: only 6.1% of households and 7.0% of children under 3 years of age are poor at the market income level. At the post-tax pre-transfer and service income (c), the poverty rates for all categories of households increase, but the existence of income deductions for children moderates the effect of the tax to some extent (b). Notably, the poverty reduction effect of dependent deductions (b-c) was moderate among all categories of households with children, ranging from 0.6% to 0.8% (household) and 0.6% to 1.0% (children).

The post-tax-transfer income with child benefits (e) is the disposable cash income (DPI) for households. Compared to the post-tax income (c), the poverty rate decreases dramatically in “all households” and “single-mother households”. However, households with children aged under 3 years of age show an increase in the poverty rate. This is because there are households that are paying social security premiums but not receiving much positive transfers and thus the overall social security system is pushing some families below the poverty line. For households with children the child-related benefits contribute little to poverty reduction and the effect of the benefits is much smaller than that of the dependent deduction. Even if the estimated child benefit is taken into consideration (e') the effect is smaller than or equal to the effect of the tax benefit. The poverty reduction effect of all social security transfers (c-e) is striking in that it is very large for “all households” and “single-mother households”, but it is only marginally positive for households with children under 20 years of age and it is negative for households

with children under 3 years of age. The results indicate that the transfer system is especially harsh for families with small children.

Overall, households with small children under 3 years of age start out with a lower poverty rate than the other households, but the poverty reduction effect of the in-cash transfer, or that of the in-kind services, does not compensate for the increase of the poverty rate due to taxes and social security premiums. Thus, households with small children end up with a poverty rate higher than that with which they started out. Also noteworthy is the result that the poverty reduction effect of the dependent deduction is much larger than that of the child allowance.

For households with children aged less than 20 years old, the negative effect that social security has on poverty rate is much smaller than it is for households with smaller children; however, at the same time the positive effect of health services is larger. Thus, the poverty rate of this category of households is slightly lower after the social security transfer and services. Also for households with children aged under 20 years of age, the poverty reduction effect of the dependent deduction is larger than that of the child allowance.

For single-mother households, the initial poverty rate is very high, but the combined effect of taxes and social security transfers reduces the rate drastically. The effect of the child-related benefits plays a big role in reducing the poverty rate. Nonetheless, it should be noted that the poverty rate using the redistributed income is still the highest for the single-mother households category.

4.2 Effect on Inequality among Households with Children

Table 4 shows the results of estimation on the effect of child-related tax and social security measures on inequality among different samples of households. As with the poverty rate, inequality at the market income (a) is the lowest among the households with small children. The Gini Coefficients for “households with children under 3” are 0.265 (household) and 0.263 (children), and those for “all households” are 0.443 (household) and 0.307 (children). The category showing the highest level of inequality was the single-mother households where the Gini coefficient at the market income is 0.444. Reflecting the progressive nature of the tax code, the Gini coefficients for after-tax income (c) are lower than the Gini coefficients for market income in all categories, except single-mother households. The overall tax system contributes to the

Table 3 Pre and Post-tax-transfer Poverty Rate by Household and by Child

| | n | Poverty Rate (%) | | | | | | | | | | | |
|-------------------------------------|------|-------------------|-------|---------------------------------------|-------|---------------------|-------|---|-------|---|-------|---|-------|
| | | Market Income (a) | | Post-tax income without deduction (b) | | Post-tax income (c) | | Post-tax-transfer income without child benefits (d) | | Post tax & trasfer income with child benefits (e) | | Estimated Post tax & trasfer income with full child benefits (e') | |
| | | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child |
| Households with children aged < 3* | 860 | 6.1 | 7.0 | 8.5 | 9.7 | 7.7 | 8.7 | 8.8 | 9.8 | 8.6 | 9.4 | 8.1 | 9.1 |
| Households with children aged <20** | 3178 | 9.7 | 10.2 | 11.8 | 12.6 | 11.2 | 11.7 | 11.6 | 12.0 | 11.2 | 11.6 | 10.9 | 11.2 |
| All Households | 8152 | 22.7 | 11.0 | 25.5 | 14.0 | 25.3 | 13.3 | 15.4 | 13.9 | 15.2 | 13.3 | 15.0 | 12.8 |
| All single-mother households | 94 | 23.4 | 26.2 | 25.5 | 27.3 | 24.5 | 26.7 | 20.2 | 22.7 | 16.0 | 18.0 | 7.5 | 10.5 |

| | n | Poverty Reduction (%) | | | | | | | | | | | |
|-------------------------------------|------|------------------------------|-------|-------------------------|-------|--------------------------|-------|--------------|-------|---------------------|-------|-------------------------------|-------|
| | | By dependent deduction (b-c) | | By child benefits (d-e) | | By child benefits (d-e') | | By tax (a-c) | | By transfers. (c-e) | | By estimated transfers (c-e') | |
| | | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child |
| Households with children aged < 3* | 860 | 0.8 | 1.0 | 0.2 | 0.4 | 0.7 | 0.6 | -1.6 | -1.7 | -0.9 | -0.7 | -0.5 | -0.5 |
| Households with children aged <20** | 3178 | 0.6 | 0.9 | 0.4 | 0.5 | 0.7 | 0.9 | -1.5 | -1.5 | 0.0 | 0.1 | 0.3 | 0.5 |
| All Households | 8152 | 0.2 | 0.7 | 0.2 | 0.6 | 0.4 | 1.1 | -2.5 | -2.3 | 10.1 | 0.1 | 10.3 | 0.5 |
| All single-mother households | 94 | 1.1 | 0.6 | 4.3 | 4.7 | 12.8 | 12.2 | -1.1 | -0.6 | 8.5 | 8.7 | 17.0 | 16.3 |

Note : * Households which had at least one child who was less than 3 years old at any time during 1995.

** Households which had at least one child who was less than 20 years old at any time during 1995.

Poverty line is 50% of median of adjusted household income (not including in-service transfer) of all households in each sample.

Right column shows the percentage in households numbers, left column shows the percentage in children under 20.

Even if there is a child in the household, if there is no mother nor father in the same household, the household is excluded from the sample.

Child Benefits include Child Allowance, Child Rearing Allowance and Disabled Child Allowance.

Estimated Child Benefits include estimated amount of Child Allowance and Child Rearing Allowance which the household is entitled to.

Source : Author's calculation from 1996 Redistribution Survey.

 = Real values
 = Estimated values

Table 4 Pre and Post-tax-transfer Inequality (Gini)

| | n | Gini Coefficients | | | | | | | | | | | |
|-------------------------------------|------|-------------------|-------|---------------------------------------|-------|---------------------|-------|---|-------|---|-------|---|-------|
| | | Market Income (a) | | Post-tax income without deduction (b) | | Post-tax income (c) | | Post-tax-transfer income without Child Benefits (d) | | Post tax & trasfer income with child benefits (e) | | Estimated Post tax & trasfer income with full child benefits (e') | |
| | | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child |
| Households with children aged < 3* | 860 | 0.265 | 0.263 | 0.256 | 0.255 | 0.254 | 0.253 | 0.254 | 0.251 | 0.252 | 0.249 | 0.246 | 0.249 |
| Households with children aged <20** | 3178 | 0.308 | 0.305 | 0.296 | 0.294 | 0.294 | 0.291 | 0.287 | 0.284 | 0.285 | 0.281 | 0.279 | 0.283 |
| All Households | 8152 | 0.433 | 0.307 | 0.431 | 0.295 | 0.429 | 0.293 | 0.339 | 0.285 | 0.338 | 0.282 | 0.337 | 0.280 |
| All single-mother households | 94 | 0.444 | 0.425 | 0.463 | 0.441 | 0.455 | 0.432 | 0.396 | 0.370 | 0.360 | 0.333 | 0.284 | 0.318 |

| | n | Gini Reduction (%) | | | | | | | | | | | |
|-------------------------------------|------|--------------------------------|-------|-----------------------------------|-------|--------------------------------------|-------|----------------|-------|---------------------------|-------|---------------------------------|-------|
| | | By dependent deduction (b-c/b) | | By actual child benefits. (d-e/d) | | By estimated child benefits (d-e'/d) | | By tax (a-c/a) | | By all transfers (c-e'/c) | | By estimated transfers (c-e'/c) | |
| | | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child | HH | Child |
| Households with children aged < 3* | 860 | 0.8 | 1.0 | 0.8 | 1.0 | 3.1 | 1.1 | 4.0 | 4.2 | 0.9 | 1.4 | 3.1 | 1.5 |
| Households with children aged <20** | 3178 | 0.6 | 0.7 | 0.8 | 0.9 | 2.8 | 0.5 | 4.3 | 4.5 | 3.2 | 3.4 | 5.1 | 3.0 |
| All Households | 8152 | 0.4 | 0.7 | 0.3 | 0.9 | 0.5 | 1.7 | 0.8 | 4.4 | 21.3 | 3.7 | 21.5 | 4.4 |
| All single-mother households | 94 | 1.6 | 2.0 | 9.0 | 10.1 | 28.3 | 14.1 | -2.4 | -1.7 | 20.9 | 23.0 | 37.6 | 26.4 |

Note : * Households which had at least one child who was less than 3 years old at any time during 1995.

** Households which had at least one child who was less than 20 years old at any time during 1995.

Right column shows the percentage in households numbers, left column shows the percentage in children under 20.

Household income is adjusted for household size (adjusted household income).

Even if there is a child in the household, if there is no mother nor father in the same household, the household is excluded from the sample.

Child Benefits include Child Allowance, Child Rearing Allowance and Disabled Child Allowance.

Estimated Child Benefits include estimated amount of Child Allowance and Child Rearing Allowance which the household is entitled to.

Source: Author's calculation from 1996 Redistribution Survey

 = Real values
 = Estimated values

reduction of the Gini by more than 4.0% for households with children. However, this effect is not strong in the “all households” category in which it is expected that most inequalities arise from inequalities among non-tax paying elderly households. The effect is negative for single-mother households.

Social security transfers also show an inequality reducing effect in all household categories. The effect is especially strong for the categories of “all households” and “single-mother households.” In the “all households” category, the reduction in the Gini coefficient is over 21% in terms of households, although the effect is much smaller in terms of children, at only 3.7%. For single-mother households, the inequality reducing effect of social security is very high both in terms of households and in terms of children. The effects of social security on households with children are much smaller in magnitude: it is only 3.2% (household) and 3.4% (children) for “households with children under 20”, and it is a mere 0.9% and 1.4% for “households with children under 3”. Even with the estimated Child Benefits (e'), the inequality reducing effect is much lower for households with children as compared to other households.

Comparing the inequality reduction effect of the dependent deduction in the tax code and that of the child benefits in the social security system, for households with children, neither is very big and they are about the same in magnitude. This was expected in the case of dependent deduction benefit since that benefit is regressive; however, the result was surprising in the case of child benefits since those benefits have income restrictions. If we look at the “estimated child benefits”, the effect is much larger for households with children, which indicates that the income restrictions on the child benefits do have some inequality reduction effect if all qualified households take-up the Child Allowance. Thus, it is possible that the take-up of Child Allowance is not related to income—a hypothesis which will be tested in the next section.

5. Logit Analysis of Child Benefit Take-up

The low take-up rate of child benefits as seen in the 1996 Redistribution Survey was noted in section III. Even though there exists a possibility of high incidence of misreporting child benefits in the Redistribution Survey, it is fair to assume that many households that are qualified to receive child benefits do not take-up the benefits. This is because, despite the high income threshold, only

about half of the children under 3 years of age receive the Child Allowance even using the official data. In this section, the factors influencing the take-up of the child benefit are investigated.

One reason for the low take-up rate of the child benefit is that the Child Allowance, the largest of child benefit programs in terms of number of recipients, is self-reporting and requires some paperwork on the part of the parent(s). For example, households must submit an application to the municipal office in person, and for households with both parents working the submission may require a day of absence from work. In other words, the forgone wages or opportunity cost of applying for the Child Allowance outweigh the benefit of the Child Allowance, which is relatively slight. Thus, it is hypothesized that mother's working status will affect the probability of take-up positively: that is, households with working mothers are less likely to receive the child benefits, holding other variables constant.

Another reason for not applying for the Child Allowance is ignorance. Parents must know about the benefit before applying for it. In this respect, single mothers who are in many cases in dire need of public assistance, in terms of both in-cash assistance and childcare, are more aware of public programs. Furthermore, qualifying single mothers receive much higher levels of assistance than other households, and this will motivate single mothers to find out about programs and their eligibility requirements. Similarly, households whose expected benefit is higher are expected to be motivated to apply for the child benefit.

A puzzling factor is the income of the households. One would normally assume that the lower the income, the higher the motivation to apply for child benefits; however, the analysis of the child benefit's impact on inequality shows that actual child benefit reduces the inequality only a little, compared to the estimated child benefits assuming 100% take-up rate. One possible reason that the actual child benefit receipt results in lower inequality reducing effect than expected is that whether or not a household actually receives the child benefit is not related to the household's income. This is because if more low income households actually receive (take-up) the benefit compared to high income households, as conventional wisdoms tell us so, the inequality reducing effect of the child benefit should be larger, not smaller, than the expected effect. Thus, it is hypothesized here that household income has little or no influence on the take-up of the child benefit.

Based on these hypotheses, the probability of a qualifying household i to receive the child benefit is formulated using the logistic function as below:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 X_i + \beta_2 C_i + \beta_3 M_i + \beta_4 A_i$$

where p_i = Probability that household i receives the child benefit

X_i = Equivalized post-tax-transfer, before child benefit income of household i

C_i = Estimated child benefit amount of household i

M_i = Mother's working status = 1 if working, =0 if not

A_i = Mother's age

The definition of the qualifying households is those households with at least one qualifying child. A qualifying child is a child whose guardian meets the income criteria for either the Child Allowance or the Child Rearing Allowance (in the case of single-mother households). Table 5 shows the basic statistics for the dependent and independent variables involved here.

Table 6 shows the result of the logistic analysis for three samples: all households, non-single-mother households, and single-mother households. The coefficient for the income (β_1) is negative and significant for qualifying households and a limited sample of qualifying non-

single-mother households, indicating lower income households have higher probability of receiving the child benefit. Thus, the hypothesis that income has no influence on the take-up of the child benefit is rejected. However, the coefficient is negative but not significant for single-mother households, and the hypothesis cannot be rejected for this category of households. The coefficient for the amount of estimated child benefit (β_2), as predicted, has positive and significant coefficients for all three samples. Mother's working status (β_3) shows an interesting result. The coefficient is positive and significant for single-mother households. This indicates that, households with working mothers have higher probability of receiving child benefits than households with non-working mothers, holding other variables constant. Single mothers have a very high rate of labor participation: about 89% (Table 5). It is possible that the expected benefit outweighs the opportunity cost of applying for the benefit for single mothers, because the amount of the Child Rearing Benefit is relatively high. But this explanation alone does not give an answer as to why working single mothers have a higher possibility of receiving the benefit than non-working single mothers. One possible reason is that working single mothers are more connected to society and thus are more information-rich compared to non-working single mothers. This is a hypothesis that needs further investigation.

Table 5 Basic Statistics

| Mean | All Qualifying households | Qualifying households except single-mother hh | Qualifying Single-mother households |
|---|---------------------------|---|-------------------------------------|
| Child benefit take-up | 0.233 | 0.200 | 0.511 |
| Equivalized Post-tax-transfer income(10,000yen) | 195.0 | 203.5 | 122.7 |
| Amount of estimated child benefit(10,000yen) | 11.94 | 7.13 | 52.72 |
| Mother's work status | 0.324 | 0.258 | 0.889 |
| Mother's age | 31.7 | 30.9 | 38.9 |
| Single-mother household | 0.105 | 0.000 | 1.000 |
| Sample size (n) | 854 | 764 | 90 |

Note:

Child benefit take-up = 1 if any kind of child benefit (Child Allowance, Child Rearing Allowance, Disabled Child Allowance) is taken, =0 otherwise

Equivalized post-tax-transfer income is the income after tax and transfer, but before child benefit, equivalized by household size.

Num of qualified children is the number of children under 3.

Mother's work status = 1 if mother is working = 0 if not

Single-mother household = 1 if yes = 0 if no

Source: Calculation by the author.

For households other than single-mother households, the coefficient is negative but not significant. The sign of the coefficient seems to support the hypothesis that households with non-working mothers have higher probability of receiving the child benefit, but it cannot be verified statistically. Mother's age () shows a negative and significant coefficient for "all households", but the coefficients are not significant for divided samples. The sign of the coefficient indicates that younger mothers have higher probability of receiving the child benefit than older mothers.

6. Conclusion

The results of this study are striking yet unsurprising. The child-related social security benefits such as the Child Allowance and the Child Rearing Allowance contribute little to the poverty reduction of households with children. Dependent exemption for children in the tax code has a stronger effect on poverty reduction than the child-related benefits. The overall effect of social security transfers (including both positive and negative transfers) on the poverty rate, as well as that of the tax system, is negative for households with children. On the other hand, the child-related benefits could play a larger role than the dependent exemptions in terms of the inequality reduction among households with children; however, if the take-

up rate of the child-related benefits is as small as indicated from the Redistribution Survey, the inequality reduction effect from the child benefit is small. The overall tax system plays the largest role in reducing inequality among households with children.

Finally, a logistic analysis was conducted to estimate effects of income, amount of expected child benefit, mother's working status, and mother's age on probability of a qualifying household receiving the child benefit. The results show the income has a negative effect on the probability of take-up, while the amount of estimated child benefit has a positive effect. Mother's working status affects positively for single-mother households, while for non-single-mother households the effect seems to be negative.

In sum, the small observed effect of child-related social security benefits are in part due to the smallness of the Child Allowance and in part due to low take-up. If the take-up rate of Child Allowance is raised, the analysis indicate that the Child Allowance could play a larger role in reducing inequality among households with children. However, if reducing the poverty rate among households with children is an objective of Child Allowance, the amount of it must be raised substantially. On the other hand, the income deduction for dependent children has a small, but positive poverty reduction: a fact which must not be forgotten while reforming the tax code. Overall,

Table 6 Logit Estimate on Probability of Child benefit take-up

| | All Qualifying households | Qualifying households except single-mother hh | Qualifying Single-mother households |
|--------------------------------------|---------------------------|---|-------------------------------------|
| Equivalized Post-tax-transfer income | -0.00642 *** | -0.00718 *** | -0.00222 |
| Amount of estimated child benefit | 0.0281 *** | 0.0833 ** | 0.1031 ** |
| Mother's work status | 0.0651 | -0.0295 | 1.7548 * |
| Mother's age | -0.0386 ** | -0.0243 | -0.0605 |
| Intercept | 0.7857 | 0.1182 | -4.3749 |
| n | 854 | 764 | 90 |
| Max rescaled R-squared | 0.1408 | 0.0851 | 0.2239 |
| | Significant at 1% *** | 5% ** | 10% * |

Note:

Equivalized post-tax-transfer income is the income after tax and transfer, but before child benefit, equivalized by household size.

Num of qualified children is the number of children eligible for child benefit.

Mother's work status = 1 (work) = 0 (not work)

Single-mother household = 1 (yes) = 0 (no)

the households with children start out with smaller poverty rate and inequality rate, but they receive a little or no direct or indirect transfers that reduce either the poverty rate or the inequality rate. This is a cause for concern and should be reconsidered while formulating policies to combat “childless society”.

Notes

* This paper was written for a project entitled Distribution of Income Project, which is a sub-project of Kosei Kagaku Kenkyu Hojokin Jigyo “International Cooperation Project on Reforms of Social Security” (1999-2001).

¹ The data used in the paper was made available to the author by the Ministry of Health, Labor and Welfare of Japan, the notice number No.117 dated 3rd April 2001.

² Dependent deduction can be applied to all dependents of the taxpayer, including spouse, children, parents, and other family members meeting the income criteria. In this paper, only the dependent deduction arising from children are concerned.

³ Even though the amount of Child Allowance is determined on a monthly basis, the actual payment is lumped together in three payments within a year.

⁴ The difference is justified because of the difference in the financing of the allowance: For employees, the employer bears a portion of the costs, whereas for the self-employed, the total cost is borne by the government.

⁵ In 2000, the percentage of children born out of wedlock is 1.63%, and the crude divorce rate is 2.30 persons out of 1,000 persons.

⁶ Since the survey does not contain data on disabilities, it is impossible to estimate the eligibility of Disabled Child Allowance. However, the number of households receiving the Disabled Child Allowance is fairly small, and thus, its effect on overall take-up rate will be negligible.

⁷ The Child Allowance is paid three times a year and its amount is not large, thus it is understandable that interviewees of the Redistribution Survey simply forgot to mention it. On the other hand, the amount of the Child Rearing Allowance is fairly large, and thus, misreporting is not expected to be widespread.

⁸ The sample is of all households that had at least one child who was under 3 years of age at any time during 1995, including those households in which a child turned 3 during 1995. Likewise for the sample of households with children aged 0-19 years. This is done because the income information is for year 1995, and if a

child was 2 at the beginning of 1995 and later turned 3, his or her household should be eligible for child allowance at least for some part of 1995.

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Appendix A:

Estimation of Child Allowance and Dependent Deduction

Child Allowance

1. Child Allowance is paid to the legal guardian (usually a parent) of a child in the tax code. The paper assumes the parent with the higher income is the guardian of the child. In the case in which one of the parents is the household head this is an easy process, since the relationship of each household member to the household head is in the database. However, in Japan where many households are composed of multiple generations and families, the household head is not necessarily the parent of a child in the household: for example, a grandfather might be a household head. To determine which household members are parents of a child, it was necessary to manually go through each household and guess the parents from each household members’ age, marital status and sex. In the case of households in

which there was no plausible parent in the household (for example, a family consisting of grandparents and a child), it was assumed that no Child Allowance was received.

2. The basis of income threshold for the Child Allowance is the guardian's income after deductions. In the Redistribution Survey only data on taxes paid and before-tax income is available and thus, income after deduction is estimated from the amount of income tax paid, estimated tax rate and estimated tax deductions.
3. The income threshold for the Child Allowance changes according to the number of dependents in the guardian's care. Since the data does not provide information on whether or not each household member is a dependent of another member of the household, or if there exists any dependents outside the household (i.e. children living away from home, etc.). Thus, It is assumed that spouse, parents, spouse's parents and children, if they exist in the household, are the dependents. Those whose income is above the dependent threshold (employment income > 1,030,000 yen OR business income > 350,000 yen OR pension income - pension deduction > 380,000 yen) were excluded.
4. If the estimated guardian's income after deductions was lower than the threshold according to the number of dependents it was determined that the guardian was eligible for the Child Allowance.

Income Deduction for Dependent Children

5. To estimate the benefit of income deduction for dependent children in the tax code, for each household member who is under 22 years of age, unmarried and dependent (as in the definition in 3.), it was determined which household member in the household as in the procedure 1.
6. The benefit of income deduction was calculated by subtracting actual income tax paid from the estimated tax liability if there were no income deduction for children. In most cases, this is simply the amount of income deduction \times # children \times tax rate.

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