

## Family formation and consumption allocation within a household in Japan

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## 1. Purposes

Sexual division of labor hardly changed during recent decades in Japan. As usually wives do child care and housework chore, the time cost of child rearing unequally is distributed within households. We have many discussion and researches about wives' time cost of child rearing. But there are few papers about how monetary cost of a child is distributed within a household.

Main purposes of this paper are three. First is whether a birth affects total amount of household consumption. Second is how household member's expenditure changes when children are born and grow up. Third is whether wives and husbands equally take the monetary cost of children by reducing their expenditure.

In order to analyze impact of a birth and children's growth on a couple's consumption share, effects of other factors which influence a couple's decision making about consumption allocation within a household should be controlled.

How is consumption allocation within a household determined by a couple? At certain point of time, the sum of household income and loans must be equal to sum of consumption, savings and taxes. At the point of time the household income is fixed and the couple determines an amount of consumption, loans and savings, considering prices and interest rate. The couple allocates available amount of consumption to household members. The process is summarized to two steps.

The first step is that the couple determines the amount of household total consumption. The factors affecting the couple's decision making are income level, prices and interest rate.

The second step is the couple's consumption allocation process. A theoretical model of the consumption allocation process is not in agreement (Behrman 1997 and Bobonis 2009). Many papers says that the allocation process includes some bargaining process of household members (Lundberg, Pollak and Wales 1997, Blundell, Chiappori and Meghir 2005 and Bayudan 2006). Someone who has more bargaining power gets more allocation of household resources.

From the first step control factors are income level, prices and interest rate. And from the second step control factors are ones affecting the bargaining power. Controlling these factors, one of this paper's purposes is analyzing the impact of

children's births and growth on consumption allocation in a household.

This paper consists of six sections. The next second section is about data. The third section is about analyzed group, the fourth is about household budget composition, the fifth is about husbands' and wives' share of consumption expenditure and the sixth is about the conclusion.

## 2. Data

The data comes from the National Survey of Family Income and Expenditure for households with two or more members at 1989, 1994, 1999 and 2004 in Japan. It was conducted by the Minister for Internal Affairs and Communication in Japan and was carried out from September to November at each year. Sample households were systematically sampled within each selected unit area based on Enumeration Districts of the latest Population Census selected within the selected cities, towns and villages. The total sample households are about 55008 at 1989, 55104 at 1994, 54792 at 1999 and 54372 at 2004. The National Statistics Center gave the permission of using the micro data, 81% of those sample households.

## 3. Analyzed Group

I targeted households consisted by a wife aged under 50 and a husband, or by a wife aged under 50, a husband and their children aged under 15, living with their parents. Although I need information about household each member's expenditure, expenditure data are categorized into men's item, women's item and children's item. In order to identify each household member's expenditure, I select households consisted by one woman, one man and children. For an example, if some adult men other than a husband live within a household, expenditure for men's item is total amount of all male household members' expenditure.

I selected households with wives aged 15-49 who can give a birth, in order to analyze the relation between family formation and household expenditure.

The reason of selecting children under 15 is that wear expenditure of children near the age of 20 years old may be categorized into women's or men's wear expenditure category.

## 4. Household Budget Composition

I divided household monthly expenditure into three categories. The first is "consumption expenditure" which is expensed for foods, cloth, house rent fee, etc. The second is "non-consumption expenditure" which is an increase in savings, buying

stocks, etc. The third is “the cash balance” which is an amount of money carried forward. I get three ratios, the consumption expenditure ratio, the non-consumption expenditure ratio and the cash balance ratio by dividing the three categories by each household’s disposal monthly income which is an amount of household total income gotten rid of tax and social security fee from each member’s income,.

#### 4.1. The Trend of Households’ Budget Composition

The next two figures show the changes in households’ disposal income and the three ratios from 1989 to 2004.

The Figure 1 (on p11) shows the median of monthly disposal income in households consisted by husbands and wives aged under 50, or their children aged under 15 cohabiting with parents, at 1989-2004, in Japan. From the Figure 1, the median of disposable incomes increased from 570 thousands yen at 1989 to 710 thousands yen at 1994. After 1994 it remained on the same level around 710 thousands yen. The numbers of the observation of each year are 13521 at 1989, 13318 at 1994, 12204 at 1999 and 11008 at 2004.

The Figure 2 (on p12) shows the average of the three ratios of consumption, on-consumption and cash balance to disposal income among households with husbands and wives aged 15- 49 years old, or their children aged under 15 years old, cohabiting with parents from 1989 to 2004 in Japan. The consumption ratio is 48% and the highest at 1989. It decreased to 42% at 1994 and remained on the same level from 1994 to 2004. Also the cash balance ratio is 10% and the highest at 1989. It decreased to 7% at 1994 and remained on the same level from 1994 to 2004. Those means that on the average households bought more goods at 1989 than the period from 1994 to 2004, and saved less money at 1989 than the period.

#### 4.2. The Change in Households’ Budget Composition by Family Formation

How do the three ratio change by the number of children at each year? The Table 3 (on p13) shows the averages of the three ratios by numbers of children among households consisted by husbands, wives aged 15-49 years old, or their children aged under 15, cohabiting with parents from 1989 to 2004 in Japan. From the Table 3, at each year, the average of the consumption ratio is smallest in households with one child or two children, and largest in households with 3 or more children. The consumption ratio of households without children is the second largest. They are the smallest family, but the consumption ratio is the second largest. So their consumption level is very high.

The largest consumption ratio of households with 3 or more children may be due to their larger number of a family, and not because of larger consumption of wives or husbands. Wives and husbands without children enjoy larger consumption than ones in households with children.

The trend of non-consumption ratio is contrary to the trend of consumption ratio. The largest average of non-consumption ratio is one of households with one or two children. The averages of non-consumption ratio of childless households or households with 3 or more children is same level around and smaller by 1-2% than one of households with one or two children.

The ratio of households with one or two children is from 65% at 1994 to 68% at 2004. They decreased household total consumption and increased savings after births. Households with three or more children cannot decrease household total consumption because of their large size of families.

Do those trends of the household budget composition change by child's growth? I divided households into four groups by their children's ages: children aged 0, preschool children aged 1-6, school age children aged 7-14 and children aged 15-20.<sup>1</sup> In order to analyze the impact of child's growth, I choose households with one child. Because households with two or more children have various combination of children's age differences and I cannot distinguish between younger children's impact and elder children's impact.

The Table 4-1 (on p14) shows the averages of the consumption expenditure ratio, the non-consumption expenditure ratio, and the cash balance ratio (%) by child's age among households consisted by husbands and wives aged 15-49 years old or their one child aged under 21 cohabiting with parents from 1989 to 2004 in Japan.

From Table 4-1, the average of consumption ratio of households without a child is the same level of the average of all households with one child aged 0-20. It is 49% at 1989 and 43% at 1994, 1999, and 2004. But the averages of the consumption ratio are different by a child's age. Households with a child adjusted their consumption according to child's growth. During child's preschool age, they decreased consumption and increased non-consumption (savings etc.) and cash balance. As a child grew, they increased consumption and decreased non-consumption and cash balance. Especially as a child was at secondary education age, they increased more consumption than as a child was younger.

Are the average's differences among five groups of the Table 4-1 statistical

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<sup>1</sup> The age data is categorized by 5 year after 15 years old and by one year from 0 years old to 14 years old.

significant? The Table 4-2 (on p15) shows the differences of the averages among the five groups. The differences are gotten from the average of households with zero year old child minus the average of households without a child, the average of household with 1-6 years old child minus the average of households with zero year old child, the average of households with 7-14 years old child minus the average of households with 1-6 years old child, and the average of households with 15-20 years old child minus the average of households with 7-14 years old child.

From the Table 4-2, compared with households with no child, at 1989 households with zero year old child decreased by 3.3% and increased non-consumption by 2% and cash balance by 1.3%. This implies that at 1989 households reduced consumption and increased savings when their first child was born. This is not observed from 1994 to 2004, because households with no child decreased consumption more at 1994 than households with one child did and maintained the same low level of consumption of households with one child as the Table 3 shows.

Compared with households with 0 year old child, households with 1-6 years old child decreased consumption and increased non-consumption at 2004. This consumption change by child's age was observed after 1994 and was statistical significant at 2004.

After a child grew to a school age households with a child increased consumption and reduced non-consumption. This consumption change got larger when a child grew to secondary education age. In Japan, to prepare entrance examinations of universities, many children go to private preparatory schools. Couples need large amount of money for private preparatory schools and secondary education. Consumption expenditure of households with children aged 15-20 may be the largest.

Above all implies that right after a birth the consumption expenditure ratio decreases or does not increase and a couple gradually adjusts their spending in order to increase savings and to prepare future large consumption. They reduce their spending to smaller amount than that before a birth and increase their savings. At the period their child goes to a high school or a university, their consumption expenditure becomes the largest.

##### 5. Husbands' and Wives' Share of Consumption Expenditure

As the Table 3, 4-1 and 4-2 show, a couple with a preschool aged child decreases their household total consumption expenditure. Do a husband and a wife with preschool aged children equally decrease their consumption expenditure? As children grow to school ages and household's consumption increases, whose consumption increases more?

To answer these questions I need information about consumption of each member of a household. In the data of the National Survey of Family Income and Expenditure, only expenditure data of clothes and shoes is categorized into men's item, women's item and children's item. Other expenditure data is not available to distinguish whose expenditure it is. I use each expenditure for men's, women's and children's clothes and shoes as variables representing husbands', wives' and children's share of expenditure. I call these three expenditures as men's wear expenditure, women's wear expenditure and children's wear expenditure.

I choose households consisted by husbands and wives aged 15-49, or children aged under 15, cohabiting with parents. Because in such households I can identify each household member's wear consumption. The men's wear expenditure is considered as consumption for husbands, the women's expenditure is considered as consumption for wives and the children's wear is considered as consumption for children.

In this paper, the husbands' wear share is the ratio of men's wear expenditure to sum of men's wear expenditure, women's wear expenditure and children's wear expenditure. The wives' wear share is the ratio of women's wear expenditure to the sum and the one child's wear share is the ratio of children's wear expenditure to the sum, which is divided by number of a household's children.

Those three shares may be influenced by income level. But in the National Survey of Family Income and Expenditure, income data is available for only "employee household"<sup>2</sup> which means a household whose head's occupation is an employee. A household's head means a member of a household who mainly earns household income. I divide households into "employee household" and "household other than employee" whose head has an occupation other than employee and do OLS regression analysis for two groups of households.

### 5.1. Independent and Control Variables

The Table 5 (on p16, 17) shows descriptive statistics for the variables used in OLS regression analyses of wear expenditure shares in households with husbands and wives aged 15-49, or children whose eldest child's age is under 15, from 1989 to 2004. The Table 5 (1) shows the descriptive statistics of two cases of the "employee household" group. Also the Table 5 (2) shows ones of two cases of "household other than employee" group. One of the two cases is households without a child and households with children

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<sup>2</sup> The income data is available for "workers' households" and "no occupation households". The latter means a household's head has no occupation. But in households with husbands and wives aged 15-49, the number of "no occupation households" is very few.

whose eldest child's age is under 15. Another of the two cases is households with children whose eldest child's age is under 15.

From the Table 5, on the average wife's wear share is larger than husband's by about 10%. Wives tend to spend more money to wear than husbands.

The 50% of households with children have two children. A "household other than employee" has more children than an "employee household" has. And on the average a wife is younger by three years than a husband.

In order to know impacts of a birth and children's growth on each member's wear expenditure share, I chose the following independent variables. The categorized variables: no child", "one child", "two children" and "3-5 children" represent the number of births. Compared with a household without a child, how number of births influence wife's and husband's wear share? When I analyze the influence of births on child's wear share, I compare households with two and more children with households with one child. And Children's growth is represented by the youngest child's age. From the Table 4-2 households with a child aged over 6 years old have larger consumption ratio. It implies that a household's consumption share is influenced more when a household has more elder children. As the age of the eldest child in analyzed group is limited under 15 years old, I chose the age of the youngest child as a variable representing children's growth.

The section 1 says that control variables are income level, prices, interest rates and factors affecting the bargaining power. A household's income level is presented by the monthly household income in the case of "employee household" group or by the total monthly expenditure in the case of "household other than employee". The total monthly expenditure is total money spent to expenditure, which includes an installment payment. The reason why I use the total monthly expenditure is that the National Survey of Family Income and Expenditure didn't ask households other than employees about income. From the Table 5, the average monthly household income is similar to the average total monthly expenditure. But the largest total monthly expenditure is three times as large as the largest monthly household income because of two reasons. First "household other than employee" includes corporative administrators and medical practitioners. Some of them could earn very high income. Second, as the total money expenditure includes installment payment, it could be larger than an income.

Prices and interest rates are represented by dummy variable of years from 1989 to 2004, because these change by years. Also these change by areas. How to control the difference among areas is a future problem.

As factors affecting the bargaining power, I use an age difference between a wife and a husband, a wife's age, a ratio of wife's employee's income to household employee income. The data has no information about education. An age difference is one of the bargaining powers. As an age difference is more, elder one has more power to persuade another one. When the effect of the age difference is controlled, elder wives have more experience than younger wives and have more power to persuade husbands. So a variable of a wife's age is included. When wives earn more money, they have more power to control using money. When the ratio of wife's employee's income to household employee income is more, it is expected that wife's wear share increases and husband's wear share decreases.

## 5.2. The OLS regression analysis

The Table 6 (on p18, 19, 20, 21) shows estimated coefficients from OLS multiple regression analyses predicting wives', husbands' and children's Shares in wear expenditure among households with husbands and wives aged 15-49, or children whose eldest child's age is under 15 from 1989 to 2004. The Table 6 (1) shows estimated coefficients of employee households and the Table 6(2) shows estimated coefficients of households other than employee.

In all models of the Table 6 (1), variables of "one child", "two children" and "3-5 children" have larger negative effects on wife's wear share than on husband's wear share. Compared with a household without a child, wife's wear share decreases more than husband's wear share in a household with children. The differences between the decrease in wife's wear share and the decrease in husband's wear share are 6% in households with one child, 4% in households with two children and 7% in households with 3-5 children in the model 3. When a child is born and a wife takes larger part of cost of child wear than a husband.

The coefficients of youngest child's age are statistically significant. As the youngest child gets older, one child's wear share decreases and wife's and husband's wear shares increase. The degree of the increase is larger twice in wife's wear share than in husband's wear share. The child's wear expenditure includes cost of diaper. Babies and toddlers need more wear than elder children because babies and toddlers often make their cloth dirty.

The ratio of wife's employee income to household's income has the expected signs of the coefficients. As a wife earns relatively more, wife's wear share increases and husband's wear share decreases. The average monthly household income is 440 thousands yen and the average wife's income is 39600 yen from the Table 5 (1). If a



wife earns 10 thousands yen more, her income ratio increases from 9% to 11% and, using the model 3 of the Table 6 (1), her wear share increases by 0.24% and husband's wear share decreases by 0.2%. The impact of wife's income ratio is statistical significant.

This increase in wife's income also has statistical significant impact on child's wear share. But the impact is very small. The 2% increase in wife's income ratio decreases child's share by 0.0002% from the model 3 of the Table 6 (1). This negative impact on child's wear share is not consistent with the positive impact said by Lundberg, Pollack and Wales (1997). It is often said that a wife more care for child's wear and an increases in her income increases child's wear expenditure. But the results of the Table 6 (1) don't support it.

From the Table 6 (2), in a case of a household other than employee, the variables of "one child", "two children" and "3-5 children" also have larger negative effects on wife's wear share than on husband's wear share in all models. In a household other than employee, the cost of child also falls more on a wife than on a husband. From the model 3 of the Table 6 (2), wife's wear share decreases more by 6% than husband's in a household with one child, by 9% in households with two children and by 12% in households with 3-5 children. The difference in the decreases of wear share gets larger when a couple has more children.

The coefficients of youngest child's age are statistically significant. As the youngest child gets older, one child's wear share decreases and wife's and husband's wear shares increase. The degree of the increase is larger twice in wife's wear share than in husband's wear share. These results are same as the results of the case of an employee household.

The results show that, controlling other factors than children's number and the youngest child's age, as the number of children increases, wife's wear share decreases more than husband's wear share. And as children grow, wife's wear share increases more than husband's. From the model 3 of the Table 6 (1), when the first child is born, wife's wear share decreases by 29% and husband's decreases by 23%. When the child gets one year old, wife's wear share increases by 2% and husband's increases by 1%. If the second child is born, each wife's and husband's wear share gets back to little lower level than the level at the first birth.

## 6. Conclusion

When the first or second child is born, household consumption expenditure doesn't increase on the average. During children's early age household consumption

expenditure decreases and a couple increases savings in order to prepare children's secondary education.

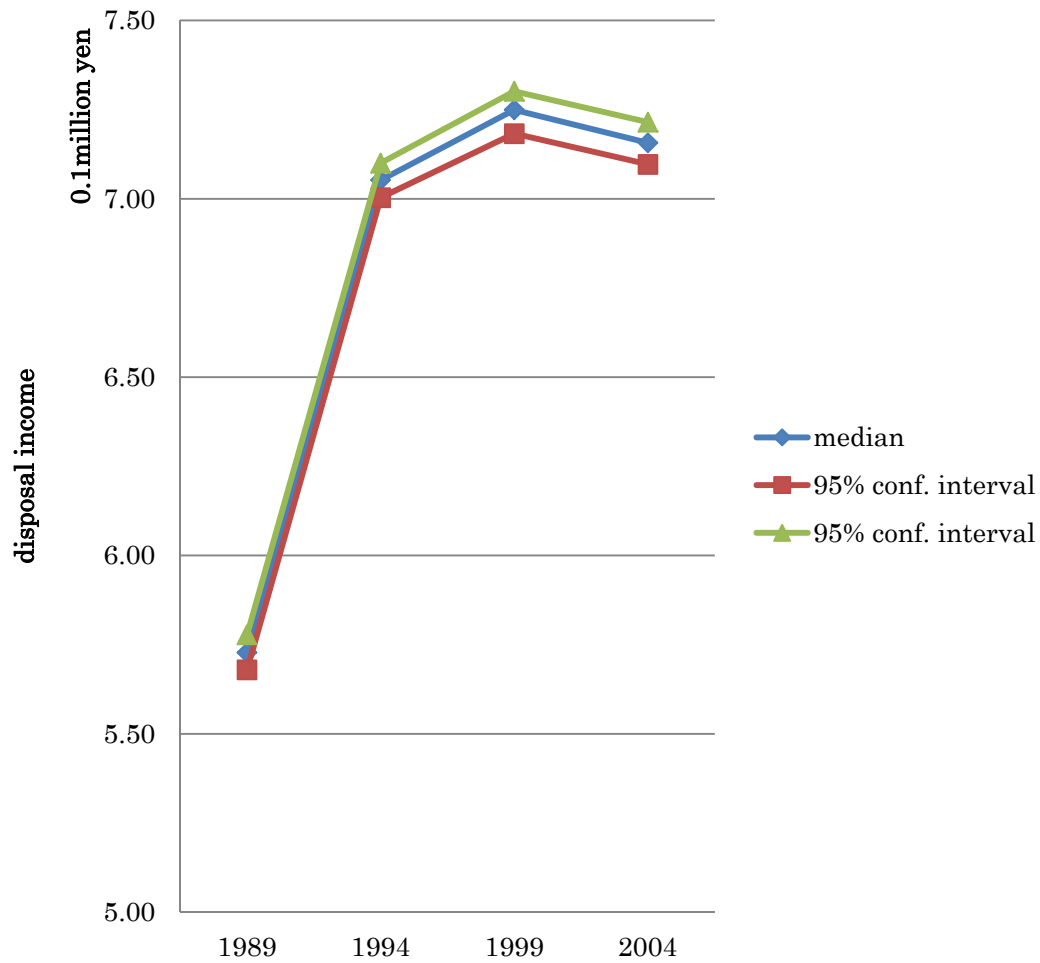
The cost of children and reduction of consumption expenditure during children's early age decrease more wives' expenditure than husbands'. In Japan wives mainly do childcare and burden time cost of childcare. At the same time wives take more consumption cost of children than husbands.

In Japan, the cost of children isn't shared evenly between a wife and a husband. Japanese wife's desire to add one child is lower than husband's (Yoshida 2009). One of the reasons why Japanese wife has lower desire is that a wife shares more cost of children.

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**Figure 1 The median of monthly disposal income in a household consisted by a husband and a wife aged under 50, or their children aged under 15 cohabiting with parents, 1989-2004, Japan**



**Figure 2 The averages of three ratios of consumption, non-consumption and cash balance to disposal income amongs households with husbands and wives aged 15- 49 years old, or their children aged under 15, cohabiting with parents, 1989-2004, in Japan**

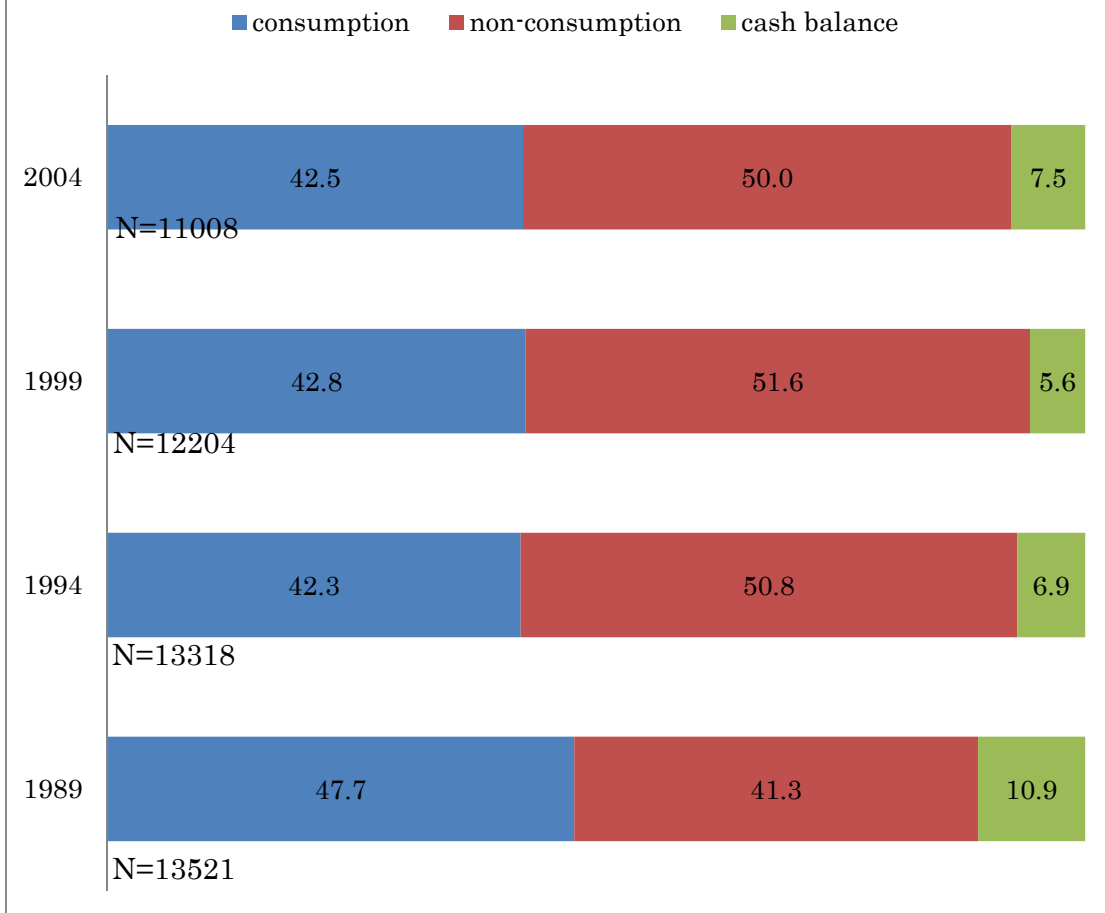


Table 3 The averages of the consumption expenditure ratio, the non-consumption expenditure ratio, and the cash balance ratio (%) by numbers of children among households consisted by husbands, wives aged 15-49 years old, or their children aged under 15 cohabiting with parents from 1989 to 2004 in Japan

(%)	No child	One child	Two children	3-5 children	total
1989					
Consumption	48.6	46.7	47.2	49.7	47.7
Non-consumption	40.3	41.8	41.7	40.5	41.3
Cash balance	11.1	11.5	11.1	9.8	10.9
total	100.0	100.0	100.0	100.0	100.0
ratio	16.0	21.4	45.1	17.5	100.0(N13521)
1994					
Consumption	42.8	42.1	41.7	43.1	42.3
Non-consumption	50.1	50.6	51.4	50.4	50.8
Cash balance	7.1	7.3	6.9	6.5	6.9
total	100.0	100.0	100.0	100.0	100.0
ratio	18.5	22.7	42.2	16.6	100.0(N13318)
1999					
Consumption	43.3	41.9	42.0	45.6	42.8
Non-consumption	50.9	52.2	52.4	49.2	51.6
Cash balance	5.8	5.9	5.6	5.2	5.6
total	100.0	100.0	100.0	100.0	100.0
ratio	20.0	25.0	40.4	14.7	100.0(N12204)
2004					
Consumption	42.9	41.9	41.8	45.1	42.5
Non-consumption	49.0	50.2	50.8	48.5	50.0
Cash balance	8.1	7.8	7.4	6.4	7.5
total	100.0	100.0	100.0	100.0	100.0
ratio	18.5	27.2	40.5	13.7	100.0(N11008)

Table 4-1 The averages of the consumption expenditure ratio, the non-consumption expenditure ratio, and the cash balance ratio (%) by child's age among households consisted by husbands and wives aged 15-49 years old, or their one child aged under 21 cohabiting with parents from 1989 to 2004 in Japan

(%)	No child	One child				Total(age0-20)
		Age 0	age 1-6	age 7-14	age 15-20	
1989						
Consumption	48.6	45.3	46.0	49.0	54.0	48.5
Non-consumption	40.3	42.3	42.3	40.4	36.2	40.4
Cash balance	11.1	12.4	11.7	10.5	9.7	11.1
total	100.0	100.0	100.0	100.0	100.0	100.0
ratio	---	14.3	40.5	20.3	24.9	100.0(N3849)
1994						
Consumption	42.8	42.3	41.5	43.3	48.1	43.5
Non-consumption	50.1	50.2	51.5	49.1	45.4	49.4
Cash balance	7.1	7.5	7.1	7.6	6.5	7.1
total	100.0	100.0	100.0	100.0	100.0	100.0
ratio	---	16.0	40.5	20.5	23.0	100.0(N 3931)
1999						
Consumption	43.3	42.2	41.1	43.5	49.4	43.3
Non-consumption	50.9	51.8	53.1	50.6	45.1	50.9
Cash balance	5.8	6.0	5.8	5.9	5.5	5.8
total	100.0	100.0	100.0	100.0	100.0	100.0
ratio	---	15.8	46.8	19.1	18.3	100.0(N 3730)
2004						
Consumption	42.9	44.3	41.0	42.6	51.5	43.4
Non-consumption	49.0	47.5	51.1	49.9	42.2	49.0
Cash balance	8.1	8.3	7.9	7.5	6.3	7.6
total	100.0	100.0	100.0	100.0	100.0	100.0
ratio	---	12.8	48.8	22.7	15.7	100.0(N 3553)

Table 4-2 The differences in averages of the consumption expenditure ratio, the non-consumption expenditure ratio, and the cash balance ratio (%) by child's age among households consisted by husbands and wives aged 15-49 years old, or their one child aged under 21 cohabiting with parents from 1989 to 2004 in Japan

(1)

(%)	Differences among the followings			
	Age 0-no child	Age(1-6)-(0)	Age(7-14)-(1-6)	Age(15-20)-(7-14)
1989				
Consumption	-3.3**	0.7	3.0**	5.0**
Non-consumption	2.0*	0.0	-1.9*	-4.2**
Cash balance	1.3*	-0.8	-1.1*	-0.8
1994				
Consumption	-0.5	-0.8	1.8**	4.8**
Non-consumption	0.1	1.3#	-2.4**	-3.7**
Cash balance	0.4	-0.4	0.6	-1.1**
1999				
Consumption	-1.1	-1.1	2.4**	5.9**
Non-consumption	0.8	1.3	-2.5**	-5.5**
Cash balance	0.2	-0.2	0.1	-0.4
2004				
Consumption	1.4	-3.2**	1.6*	8.8**
Non-consumption	-1.5	3.6**	-1.2	-7.7**
Cash balance	0.2	-0.4	-0.4	-1.1*

\*\* Significant at  $p < 0.01$ .

\* Significant at  $p < 0.05$

# Significant at  $p < 0.1$

Table 5 Descriptive Statistics for the Variables Used in Regression Analyses of Wear Expenditure Shares in Wear Expenditure: Households with husbands and wives aged 15-49, or children whose eldest child's age is under 15, 1989-2004

(1) Employee Household (Household Heads are Employees);

	No child or The eldest child's age<=14				The Number of Children= 1-5 the eldest child's age<=14			
	N=43248				N= 35773			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
wife's wear share (in wear expenditure)	0.35	0.27	0	1				
husband's wear share	0.26	0.25	0	1				
one child's wear share					0.28	0.22	0	1
no child	0.17	0.38	0	1				
one child	0.25	0.43	0	1	0.30	0.46	0	1
two children	0.43	0.50	0	1	0.52	0.50	0	1
3-5 children	0.15	0.36	0	1	0.18	0.39	0	1
Youngest child's age								
one child's age	0.98	2.67	0	14	1.18	2.90	0	14
of two children	2.20	3.44	0	14	2.66	3.62	0	14
of 3-5 children <sup>a</sup>	0.62	1.85	0	14	0.75	2.01	0	14
An age difference:								
wife's age-husband's age	-2.60	4.03	-30	15	-2.56	3.99	-30	15
wife's age <sup>b</sup>	34.53	6.05	17	47	34.47	5.43	17	47
wife's employee income/household employee income <sup>c</sup>	0.09	0.16	0	1	0.08	0.15	0	1
monthly household income (million yen)	0.44	0.17	0.03	5.43	0.43	0.16	0.03	5.43
dummy variable year 1989	0.26	0.44	0	1	0.27	0.44	0	1
dummy variable year 1994	0.27	0.44	0	1	0.27	0.44	0	1
dummy variable year 1999	0.25	0.43	0	1	0.24	0.43	0	1
dummy variable year 2004	0.22	0.42	0	1	0.22	0.42	0	1
dummy variable (missing child's age) <sup>d</sup>	0.0002	0.01	0	1	0.0002	0.01	0	1

a; some observations miss the fifth child's age data. They have categorized age data by 5 years categories. Those are replaced by the middle year of each category.

b ,c, d is on the next page.



(continued) Table 5 Descriptive Statistics for the Variables Used in Regression Analyses of Wear Expenditure Shares in Wear Expenditure: Households with husbands and wives aged 15-49, or children whose eldest child's age is under 15, 1989-2004

(2) Household other than employee (Household Heads have occupations other than employees);

	The Number of Children= 0-5 & the eldest child's age<=14				The Number of Children= 1-5 & the eldest child's age<=14			
	N=5673				N=4636			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
wife's wear share (in wear expenditure)	0.38	0.28	0	1				
husband's wear share	0.26	0.25	0	1				
one child's share <sup>a</sup>					0.24	0.20	0	1
no child	0.18	0.39	0	1				
one child	0.19	0.39	0	1	0.23	0.42	0	1
two children	0.40	0.49	0	1	0.49	0.50	0	1
3-5 children	0.23	0.42	0	1	0.28	0.45	0	1
Youngest child's age								
of one child	1.12	3.08	0	14	1.38	3.36	0	14
of two children	2.35	3.69	0	14	2.88	3.89	0	14
of 3-5 children <sup>a</sup>	1.05	2.38	0	12	1.28	2.58	0	12
difference: wife's age-husband's age	-3.31	4.50	-40	10	-3.14	4.35	-30	10
wife's age	36.75	6.20	17	47	35.84	5.42	22	47
Total monthly expenditure (million yen)	0.40	0.39	0.03	17.0 9	0.39	0.39	0.06	17.0 9
dummy variable year 1989	0.34	0.47	0	1	0.34	0.47	0	1
dummy variable year 1994	0.26	0.44	0	1	0.26	0.44	0	1
dummy variable year 1999	0.21	0.41	0	1	0.20	0.40	0	1
dummy variable year 2004	0.19	0.39	0	1	0.19	0.39	0	1

<sup>a</sup>: children's wear share/a number of children of a household

b: wives' age data are categorized by 5 years. Wives' age are replaced by the middle year of each category.

c:missing observation is 8. The ratio is 0.018%.

d:the dummy variable indicates replaced age data of the fifth child.

Table 6 Estimated Coefficients from OLS Multiple Regression Analyses Predicting wives', husbands' and children's Shares in Wear Expenditure: Households with husbands and wives aged 15-49, or children whose eldest child's age is under 15, 1989-2004

(1) Household Heads are Employees

variables	The shares in wear expenditure					
	Model1			Model2		
	Wife	Husband	one child <sup>c</sup>	Wives	Husband	one child <sup>c</sup>
no child	Ref.	Ref.	--	Ref.	Ref.	--
one child	-0.22**	-0.16**	Ref.	-0.20**	-0.17**	Ref.
two children	-0.23**	-0.18**	-0.19**	-0.22**	-0.19**	-0.19**
3-5 children	-0.27**	-0.19**	-0.24**	-0.26**	-0.20**	-0.24**
Youngest child's age						
One child's age						
of two children						
of 3-5 children <sup>a</sup>						
Age difference: wife-husband	-0.003**		0.004**	-0.003**		0.003**
wife's age	0.007**	0.004**	-0.01**	0.006**	0.004**	-0.010**
employee income ratio: wife's/household's				0.16**	-0.07**	-0.0006**
monthly income(million yen)				0.11**	0.06**	-0.11**
dummy variable year 1989	0.02**	0.06**	-0.06**	0.03**	0.06**	-0.07**
dummy variable year 1994	0.01**	0.03**	-0.04**	0.02**	0.03**	-0.04**
dummy variable year 1999	Ref.	0.009**	-0.006*		0.007*	-0.005#
dummy variable year 2004	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
intercept	0.29**	0.25**	0.86**	0.25**	0.24**	0.86**
Adjusted R-square	0.1329	0.0857	0.3364	0.1487	0.0879	0.3454
F-value	948.14**	580.28**	2591.15**	840.48**	464.06**	2097.93**
N	43248	43248	35773	43248	43248	35773

c: children's wear share/a number of children of a household

\*\* Significant at p<0.01.

\* Significant at p<0.05

#Significant at p<0.1

Table 6(continued) Estimated Coefficients from OLS Multiple Regression Analyses Predicting wives', husbands' and children's Shares in Wear Expenditure: Households with wives aged 15-49 and the eldest child's age is under 15, 1989-2004

(1) (continued) Household Heads are Employees

variables	The shares in wear expenditure		
	The eldest child's age<=14		
	Model3		
	Wives	Husband	one child <sup>c</sup>
no child	Ref.	Ref.	--
one child	-0.29**	-0.23**	Ref.
two children	-0.30**	-0.26**	-0.27**
3-5 children	-0.33**	-0.26**	-0.37**
Youngest child's age			
One child's age	0.02**	0.01**	-0.03**
of two children	0.02**	0.01**	-0.02**
of 3-5 children <sup>a</sup>	0.02**	0.01**	-0.01**
Age difference: wife-husband	-0.001**	0.001**	-0.0005*
wife's age	0.0003	-0.0003	0.0009**
employee income ratio;			
wives'/household's	0.12**	-0.10**	-0.0001*
monthly income(million yen)	0.10**	0.051**	-0.12**
dummy variable year 1989	0.02**	0.05**	-0.05**
dummy variable year 1994	0.01**	0.03**	-0.03**
dummy variable year 1999	Ref.	0.006#	Ref.
dummy variable year 2004	Ref.	Ref.	Ref.
intercept	0.46**	0.40**	0.61**
Adjusted R-square	0.1800	0.1075	0.4242
F-value	791.94**	401.49**	2396.39**
N	43248	43248	35773

a; some observations miss the fifth child's age data. They have categorized age data by 5 years categories. Those are replaced by the middle year of the category.

b; the dummy variable indicates replaced age data of the fifth child.

c; children's wear expenditure/the number of children

\*\* Significant at p<0.01.

\* Significant at p<0.05

#Significant at p<0.1

Table 6(continued) Estimated Coefficients from OLS Multiple Regression Analyses Predicting wives', husbands' and children's Shares in Wear Expenditure: Households with Wives Aged 15-49 1989-2004

(2)Household Heads have Jobs other than Employees

Variables	The shares in wear expenditure					
	Model1			Model2		
	Wives	Husband	one child <sup>a</sup>	Wives	Husband	one child <sup>a</sup>
no child	Ref.	Ref.	--	Ref.	Ref.	--
one child	-0.17**	-0.13**	Ref.	-0.17**	-0.13**	Ref.
two children	-0.22**	-0.14**	-0.16**	-0.22**	-0.14**	-0.16**
3-5 children	-0.26**	-0.15**	-0.22**	-0.26**	-0.15**	-0.21**
Youngest child's age						
One child's age						
of two children						
of 3-5 children						
Age difference: wife-husband	-0.0009	-0.0007	0.002**	-0.0008	-0.0007	0.002**
wife's age	0.005**	0.005**	-0.01**	0.005**	0.004**	-0.01**
Total expenditure (million yen)				0.04**	0.02*	-0.04**
dummy variable year 1989	0.02**	0.05**	-0.06**	0.02*	0.05**	-0.06**
dummy variable year 1994	0.02#	0.03**	-0.04**		0.03**	-0.04**
dummy variable year 1999			-0.01			-0.01
dummy variable year 2004			Ref.		Ref.	Ref.
Intercept	0.34**	0.18**	0.80**	0.34**	0.18**	0.80**
Adjusted R-square	0.1364	0.0781	0.2615	0.1397	0.0787	0.2678
F-value	129.01**	69.65**	235.48**	132.53**	61.53**	212.91**
N	5673	5673	4636	5673	5673	4636

<sup>a</sup>: children's wear expenditure/the number of children

\*\* Significant at p<0.01.

\* Significant at p<0.05

# Significant at p<0.1

Table 6 (continued) Estimated Coefficients from OLS Multiple Regression Analyses Predicting wives', husbands' and children's Shares in Wear Expenditure: Households with Wives Aged 15-49 1989-2004

(2) (continued) Household Heads have Jobs other than Employees

Variables	Model3		
	Wives	Husband	one child <sup>a</sup>
no child	Ref.	Ref.	--
one child	-0.30**	-0.24**	Ref.
two children	-0.34**	-0.25**	-0.27**
3-5 children	-0.36**	-0.24**	-0.37**
Youngest child's age			
One child's age	0.02**	0.01**	-0.03**
of two children	0.02**	0.01**	-0.02**
of 3-5 children	0.02**	0.01**	-0.009**
Age difference: wife-husband			
wife's age			
Total expenditure (million yen)	0.04**	0.02#	-0.04**
dummy variable year 1989	0.008	0.04**	-0.03**
dummy variable year 1994		0.02**	-0.02**
dummy variable year 1999	Ref.	Ref.	
dummy variable year 2004	Ref.	Ref.	Ref.
Intercept	0.56**	0.37**	0.61**
Adjusted R-square	0.1696	0.1056	0.375
F-value	145.8**	75.43**	348.57**
N	5673	5673	4636

<sup>a</sup>: children's wear expenditure/the number of children

\*\* Significant at p<0.01.

\* Significant at p<0.05

# Significant at p<0.1