where $P*$ is the price of childcare which maximizes the mother's utility, and Z is household attributes and other factors affecting childcare costs. Because P is observable only for working mothers who are using licensed day-care centers, and because a significant proportion of working mothers are not using licensed day-care centers, we cannot estimate the day-care fee function simply by OLS. To correct for the sample selection bias, we first estimate a reduced-form bivariate probit model for labor participation and paying for day-care fee, then we estimate a day-care fee function by OLS including a regressor which deals with selectivity-bias[9]. Based on the estimated parameters, the amount of day-care fee to be paid when the mother participates is predicted for each sample household.

As described in section 2, the fees of licensed day-care centers are basically determined by household income, the child's age, and the number of siblings. However, to avoid endogeneity of mothers' income, household income excluding that of mother's, and square term of this income are used as explanatory variables.[10]

In addition, we include the day-care fee collection rate of each prefecture as compared to the government-level day-care fees (hereinafter referred to as "collection rates")[11] to capture the differences in day-care fees between municipalities. As a subsidy to the households using licensed day-care centers, most municipalities charge lower fees than the government standard, but there are very large gaps in the collection rate between areas. For example, Metropolitan Tokyo has the lowest collection rate: only about 35-40% that of the government standard.

Third, we estimate the structural participation probit by including the predicted logarithm wage and the predicted day-care fees.

3.3 Obtaining the Data for Day-care Fees

Because *The Basic Survey on People's Life* does not provide data on the amount of

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[9] For details, see Connelly(1992) p.36 and Maddala (1983) p.368.

[10] Square term of this household income is included because day-care fees have upper limits.

[11] The collection rates used in the estimation were obtained from the *1998 White Paper on Childcare* of the Childcare Research Institute.

childcare costs paid by the parents, we estimate the fees paid by the sample households using licensed day-care centers employing data on taxes and on the number and age of preschool children that are available from the *Survey*. Specifically, we refer to the lists of day-care fees of local governments that classify households into 15 to 35 brackets according to the amounts of taxes paid and the number and age of preschool children of households. The number of brackets and the day-care fee charged to each bracket differ from municipality to municipality. For example, in Nagano City, a household who paid income tax of 100,000 yen in the previous year will be classified as the 8th income bracket and be charged 41,500 yen per month to have their child younger than 3 years of age cared for in licensed day-care centers. On the other hand, in Chiyoda-city, Tokyo, the same household will be classified as the 11th income bracket and be charged only 21,500 yen per month. Thus, calculations are made for the 540 households for which these data were available[12].

The calculated monthly fees per child using licensed day-care centers range from 0 (exempted) to 61,500 yen, with the average fee at 21,904 yen. One can say that households in Japan using licensed day-care centers enjoy relatively lower childcare costs than US households; employing 1990-1993 SIPP panels, Anderson and Levine (2000) reports the average weekly childcare costs for married mothers with children under six years of age to be $71.17, or 39,908 yen per month if calculated at the 1992 average exchange rate ($1=126.62 yen). Obviously, the lower fees of Japanese licensed day-care centers result from the ability-to-pay collection system and large subsidies from the central and local governments (Zhou, Oishi and Ueda, 2002).

3.4 Estimation Results

Estimation Results of Mothers' Incomes

The samples used for estimation are 3,417 households that have information on

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[12] The collection rates differ from municipality to municipality, even in the same prefecture. But the lists of nursery fees for prefecture capitals were used for all samples from the prefecture concerned because (1) no municipalities can be identified from the questionnaires of the survey and (2) differences in collection rates between municipalities are smaller than those between prefectures.

preschoolers and both parents without missing values[13]. Summary statistics of the variables used are shown in Table 5.

Table 6 shows the estimation results of market wage. First, we find that incomes are significantly higher if mothers take part in the *Employees' Pension Insurance (EPI)* or *Mutual-Aid Associations (MAA)* by themselves (compared to the *National Pension* subscriber), whereas they are significantly lower if mothers are spouses of *EPI* or *MAA* subscriber. Second, compared to mothers in large cities, those in rural areas have significantly lower wage incomes. Third, the active opening ratio[14] has a significantly positive effect on wage income, which indicates that wages tend to be higher in areas with a tight labor supply. Finally, turning to the alternative model, no variable except for active opening ratio has significant effect on income, indicating that variations in mothers' incomes are not adequately captured if we exclude the pension status.

<Table 6 around here>

Estimation Results of the Day-care Fees

The estimation results of the day-care fee function are summarized in Table 7. While day-care fees become significantly higher if household income (denoted "unearned income") is higher, the coefficient of the square term of household income is negative, which indicates that marginal effect of income is decreasing. Compared to the case in which the youngest child is under 1 year old, no significant differences in day-care fees are observed in fees for children aged one to two, but for children aged three or over, day-care fees are substantially lower. If two children are put in the charge of a licensed day-care center, their day-care fees are reduced by 12,000 yen a month or so per child. A one percent rise in the collection rate increases the fees by 270 yen. Thus, day-care fees in Tokyo are lower than the government standard by about 16,000 yen on average.

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[13] As seen in Michalopoulos, et al. (1992), Kimmel (1998) and Anderson and Levine (2000), analyzing single mothers is important from the viewpoint of policy-making. But, the samples were limited to households having both parents, because the number of fatherless households in the samples is not large.

[14] Active opening ratio=active job openings / active applications.

Using the coefficients obtained here, predictions were also made of the day-care fees that the households would pay if they used licensed day-care centers. The average fee thus calculated is 27,200 yen a month and the maximum fee is 51,688 yen.

<Table 7 around here>

Estimation Results of the Participation Probits

Table 8 demonstrates the estimation results of the participation probits. Note that labor force participation here includes self-employment. To compare the effect of each independent variable, results are shown in marginal effects evaluated at the mean values of the regressors.

First and most interestingly, the impact of day-care fees on mothers' labor force participation is significant and negative in both models. We find that the elasticity of the probability of participation due to the changes in the average day-care fees is -0.63 for base model and -0.85 for alternative model, respectively. It is surprising because these elasticities are much smaller than the ones estimated by Komamura (1996) or Niimi (2002) which range from -2.6 to -4.3.

Second, as the theory predicts, mothers' incomes are significantly positive in both models, indicating that higher wages raise the probability of participation. However, predictive power of wages differs considerably in both models. Because pension status is closely linked to current working status as well as working hours, it seems the base model, which includes pension status as an explanatory variable of mother's income, captures too much of the effect of pension status through incomes. On the other hand, the alternative model which falls short of describing the variations of wages may capture too little of the effects of wages on labor participation.

Third, availability of licensed day-care services significantly raises mothers' labor participation rates. Thus, we can empirically confirm the importance of childcare policy in promoting women's labor participation.

Let us move to the effects of other variables. Living in smaller cities and rural areas has a positive effect on the probability of participation. This result is also persuasive in the light of the fact that almost no waiting children are found in the rural areas. While mothers in households who have a lot of net financial assets are less likely to participate, those who live in rented houses are more likely to participate. These results suggest that fewer household assets lower the reservation wage of mothers. The dummy variable for extended family (three-generation household) has significantly positive effects on participation, which is consistent with the results of past studies. High income of other household member has negative but insignificant effect in the base model.

Finally, mothers are more likely to participate if their youngest child gets older, while an increase in the number of preschool children lowers mothers' probability of participation, as expected by the theory.

<Table 8 around here>

3.5 Simulations

To check the impacts of the day-care fees on the labor force participation of mothers, three simulations were done, as shown in Table 9. *Simulation 1* refers to the case where the prefecture's admission rate for licensed day-care centers was raised by 10 percent point. In *Simulation 2,* each household's day-care fees are set to zero, while *Simulation 3* refers to the case in which the monthly day-care fees are fixed to 60,000 yen regardless of the household income[15]. Note that the household income figures in the table are those of actual household income at the time of the survey, and are not those of potential household income if mothers are employed.

<Table 9 around here>

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[15] In Simulation 3 we set the day-care fees to 60,000 yen because most municipalities set the maximum fees to be 57,000-63,000 yen.

First, easy access to licensed day-care services raises the participation rate of mothers in low-income households, but the impact is small (3.4 point at maximum).

Second, the impact of the free childcare service is larger for the households with annual income of 7 million yen or more, because rich households who are currently paying higher day-care fees can benefit more from the reform. The increase in the participation rate for the income bracket of 10 million yen a year or more is 14.3 point relative to the base case, while the absolute increase for the income bracket of less than 3.5 million yen a year is 12.2 point.

Third, the fixed fee reform has markedly different impact on high- and low-income households. As shown in Table 9, low-income households with annual income of less than 3.5 million yen see their mothers' participation rate drop by 21.4 point. In contrast, the highest income brackets with annual income of 10 million or more see their mothers' participation rate drop by 9.8 point. This is because the present ability-to-pay system that plays a redistribution role is eliminated in Simulation 3. Unless subsidized by the government, most of the mothers in low-income households are unable to work.

Forth, as seen from the estimated wage levels of mothers, labor participation for annual income bracket of 0.9-1.3 million yen is most sensitive to changes in the day-care fees. The probability of participation for this bracket rises by 16.7 point if there were free childcare services available and falls by 27.1 point if day-care fees were fixed to 60,000 yen a month. Labor participation of the higher wage group is not elastic toward day-care fees, especially which of the income bracket of 2 million yen or more.

To summarize, lowering of day-care fees is inefficient because it greatly induces labor supply of mothers who could earn less than 1.3 million yen a year, bringing no additional revenues to tax and social security. At the same time it is not desirable from the viewpoint of equity because rich household can benefit more and those who take care of their children at home can enjoy no such benefits. On the other hand, raising day-care fees discourages mothers' labor participation of low-income households and expands income disparities among the childrearing households.

4. Conclusion and Policy Implications

Using micro data from the *Basic Survey on People's Life* for 1998, this paper first investigated (1) the childcare situation of preschoolers and (2) the economic situation of the households using licensed day-care centers. Then it analyzed (3) the impact of day-care fees on the labor force participation of mothers with preschool children.

Our main findings are as follows. First, households using licensed day-care centers are not always low-income households. Considering the fact that a large amount of subsidies is granted to licensed day-care centers, the question of fairness arises, because there are households that take care of children at home. Second, in most cases, mothers who use licensed day-care centers earn less than 1.3 million yen a year, so that they pay neither taxes nor social security premiums. Advocators of expansion in public childcare services often emphasize that it would promote women's economic independence and would ultimately lead to higher tax and social insurance premium revenues[16]. But, it is doubtful that providing public childcare services has actually contributed to the full-scale employment of women. Third, day-care fees have significantly negative effects on the labor force participation of mothers, and its elasticity is about -0.63. Labor supply of mothers who would earn low wages is more elastic to the changes in day-care fees than those who would earn high wages.

These results show that existing childcare systems are neither efficient as tools of redistribution among the childrearing households nor effective as tools for promoting women's economic independence. Additional measures are needed to achieve these political goals.

One such policy measure is, as proposed by Zhou and Oishi (2002), to charge flat fees regardless of income levels, while substantially increasing Childcare Allowances (5,000 yen per child/month at present) that are set regressively according to household income. This measure will allow mothers to compare the wage they would earn if they worked with the day-care fee, and to choose to purchase childcare services with cash benefits (Childcare Allowances) or to take care of their children themselves. It would therefore be fair to both the users of childcare services and to those taking care of

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[16] One example is Niimi (2002).

children at home, and would make it possible to efficiently distribute childcare resources.

Another measure is to reform the taxation and social security systems, which have a bias toward the labor supply of married women. The current systems favor women's part-time work or low-income jobs, which is one of the reasons for large wage gaps between males and females in Japan. If the "tax wedge" for women's labor supply were eliminated, more women would have been working fulltime and paying more taxes and social security premiums. As often pointed out, social systems need to be as neutral to the work choices of women as possible.

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Table 1 Primary Care Arrangement by Mothers' Working Status (percent)

N=3,781

Primary care arrangement	Total	Not working	Working		
					Self-employed,
			Total	Employed	employed,
Parent	49.7	68.3	12.9	8.6	23.5
Grandparent	9.1	5.8	15.5	17.2	11.4
Licensed day-care centers	19.8	7.2	44.6	48.8	34.6
Non-licensed day-care cente	2.1	0.7	4.9	5.9	2.4
Kindergartens	16.4	16.9	15.4	13.3	20.5
Other arrangements	1.1	0.8	1.8	1.9	1.6
Unknown	1.8	0.3	4.8	4.3	5.9
Total	100.0	100.0	100.0	100.0	100.0

Source: Author's calculation based on the *1998 BSPL* data.

Note: Among the 3,781 sample households, 1,270 (34%) mothers are working and 900 (24%) mothers are working as employees.

Table 2 Primary Childcare Arrangement by Age of the Youngest Child (percent)

N=3,781

Primary care arrangement	Total	Age of the youngest child						
		0	1	2	3	4	5	6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Parent	49.7	78.7	68.4	64.0	36.5	14.4	11.7	12.7
Grandparent	9.1	14.5	13.7	11.7	6.0	2.2	1.4	1.4
Licensed day-care centers	19.8	4.3	12.8	17.8	31.3	31.5	32.5	23.9
Non-licensed day-care cente	2.1	0.9	2.6	3.6	1.5	2.6	1.8	0.0
Kindergartens	16.4	0.0	0.0	0.0	22.5	45.3	47.4	56.3
Other arrangements	1.1	0.8	1.7	1.6	1.3	0.8	0.6	0.0
Unknown	1.8	0.9	0.9	1.3	0.9	3.2	4.5	5.6

Source: Author's calculation based on the *1998 BSPL* data.

Table 3　Household Income, by Primary Childcare Arrangement

	No. of obs	Mean income	Mean income EQV	Father's	Mother's
			million yen		
Total	3819	6.793	2.296	4.938	0.697
		(4.662)	(1.430)	(3.248)	(1.509)
Parent / Grandparent	2232	6.596	2.241	4.960	0.411
		(4.648)	(1.240)	(2.820)	(1.133)
Lisenced day-care centers	757	6.774	2.225	4.051	1.430
		(4.533)	(1.562)	(3.050)	(1.894)
Non-lisenced day-care center	81	7.212	2.561	4.923	1.554
		(5.056)	(1.609)	(3.727)	(2.491)
Kindergartens	628	7.341	2.517	6.003	0.577
		(4.707)	(1.641)	(4.315)	(1.486)
Other arrangements	45	7.239	2.333	4.338	0.683
		(4.397)	(1.087)	(2.393)	(1.197)

Source: Oishi(2002)

Notes: (1) Standard errors in parentheses. (2) EQV adjusted income=(average household income/EQV), where EQV= 1+ 0.7*(number of adults -1) + 0.5*number of children.

Table 4 The Taxation Condition on Mothers' Incomes, by Primary Childcare Arrangement (

	Total	Parent / Grandparent	Lisenced day-care centers	Non-lisenced day-care	Kindergartens
No earnings	67.4	79.6	33.1	38.8	73.7
With earnings	32.6	20.4	66.9	61.3	26.3
paying income tax	16.3	10.7	31.2	38.8	11.9
contributing SS premiun	18.4	12.1	36.5	41.3	12.7
Total	100.0	100.0	100.0	100.0	100.0

Source: Oishi(2002)

Table 5 Summary Statistics

Variable	Mean	Std. Dev.	Minimum	N=3,417 Maximum
Labor force participation	0.356	0.479	0	1
Estimated day-care fees (10 thousand yen/month)	2.720	0.906	0	5.168859
Estimated day-care fees (10 thousand yen/month)*	2.790	0.899	0	5.230976
Estimated wage (10 thousand yen/year)	94.830	86.906	27.04328	549.6603
Estimated wage (10 thousand yen/year)*	113.8329	21.79222	60.73074	226.859
Age	32.143	4.846	19	49
City size (control: Metropolitan area)				
150000 residents or more	0.322	0.467	0	1
50000 to 150000 residents	0.223	0.416	0	1
Less than 50000 residents	0.055	0.227	0	1
Rural area	0.212	0.409	0	1
Pension status (control: National Pension subscriber)				
EPI subscriber	0.127	0.333	0	1
MAA subscriber	0.049	0.216	0	1
Spouse of EPI subscriber	0.525	0.499	0	1
Spouse of MAA subscriber	0.090	0.286	0	1
Non-subscriber	0.040	0.197	0	1
Active opening rate (time)	0.542	0.158	0.19	0.99
Household's net financial assets (million yen)	-3.199	12.978	-35	35
Housing status (control: Detached houses)				
Owned apartment houses	0.085	0.279	0	1
Rented houses owned privately	0.256	0.437	0	1
Rented houses, n.e.s.	0.161	0.368	0	1
Household type: extended family	0.257	0.437	0	1
Unearned income (million yen)	5.938	3.290	0	24.8
Age of the youngest child (control: less than 1 year)				
1 year old	0.212	0.409	0	1
2 years old	0.170	0.376	0	1
3 years old	0.145	0.352	0	1
4 years old	0.136	0.343	0	1
5 years old	0.146	0.353	0	1
Number of preschool children in the household	1.324	0.509	1	4
Day-care fees collection rate (% of national standard)	67.849	12.350	35.02	94.1
Day-care admission rate (% of preschool children)	24.297	8.529	12.7	54.9

Note: * denotes predictions estimated by the alternative model.

Table 6 Estimation Results of Mothers' Income

	Base model				Alternative model			
	Coefficient	Std. error	z	P>|z|	Coefficient	Std. error	z	P>|z|
Yearly income (in logarithm)								
Age	0.070	0.050	1.390	0.164	0.049	0.066	0.740	0.461
Age squared	-0.054	0.073	-0.750	0.456	-0.022	0.098	-0.220	0.823
City size (control: Metropolitan area)								
150000 residents or more	-0.143 *	0.076	-1.880	0.060	-0.137	0.109	-1.260	0.209
50000 to 150000 residents	-0.186 **	0.079	-2.340	0.019	-0.076	0.115	-0.660	0.508
Less than 50000 residents	-0.157	0.125	-1.250	0.210	0.126	0.171	0.730	0.462
Rural area	-0.218 ***	0.074	-2.930	0.003	-0.076	0.117	-0.650	0.515
Pension status (control: National Pension subscriber)								
EPI subscriber	0.769 ***	0.079	9.750	0.000				
MAA subscriber	1.368 ***	0.084	16.220	0.000				
Spouse of EPI subscriber	-0.605 ***	0.085	-7.090	0.000				
Spouse of MAA subscriber	-0.849 ***	0.180	-4.720	0.000				
Non-subscriber	-0.296	0.190	-1.560	0.120				
Active opening rate (time)	0.328 **	0.155	2.120	0.034	0.357 *	0.215	1.660	0.097
Intercept	2.844 ***	0.858	3.320	0.001	3.255 ***	1.142	2.850	0.004
Participation								
Age	0.173 ***	0.064	2.720	0.006	0.146 ***	0.051	2.900	0.004
Age squared	-0.219 **	0.096	-2.290	0.022	-0.191 **	0.077	-2.500	0.013
City size (control: Metropolitan area)								
150000 residents or more	0.163 *	0.097	1.680	0.093	0.105	0.079	1.330	0.185
50000 to 150000 residents	0.266 ***	0.102	2.610	0.009	0.210 **	0.085	2.470	0.014
Less than 50000 residents	0.067	0.159	0.420	0.674	0.191	0.127	1.510	0.131
Rural area	0.395 ***	0.108	3.640	0.000	0.379 ***	0.090	4.210	0.000
Pension status (control: National Pension subscriber)								
EPI subscriber	1.725 ***	0.098	17.540	0.000				
MAA subscriber	2.251 ***	0.172	13.080	0.000				
Spouse of EPI subscriber	-0.578 ***	0.080	-7.190	0.000				
Spouse of MAA subscriber	-0.630 ***	0.131	-4.800	0.000				
Non-subscriber	-0.146	0.149	-0.980	0.326				
Active opening rate (time)	0.011	0.213	0.050	0.958	0.011	0.174	0.060	0.949
Household's net financial assets	-0.001	0.003	-0.200	0.841	0.000	0.002	-0.080	0.938
Housing status (control: Detached houses)								
Owned apartment houses	0.201	0.123	1.630	0.103	0.115	0.099	1.160	0.247
Rented houses owned privately	0.066	0.091	0.720	0.470	-0.047	0.078	-0.610	0.545
Rented houses, n.e.s.	0.102	0.103	1.000	0.320	-0.160 *	0.091	-1.750	0.080
Household type: extended family	0.172 **	0.086	2.010	0.045	0.340 ***	0.069	4.940	0.000
Unearned income	-0.129 ***	0.026	-5.040	0.000	-0.175 ***	0.020	-8.840	0.000
Unearned income squared	0.006 ***	0.001	4.500	0.000	0.007 ***	0.001	7.200	0.000
Age of the youngest child (control: less than 1 year)								
1 year old	-0.009	0.104	-0.080	0.933	-0.038	0.086	-0.450	0.655
2 years old	0.144	0.104	1.380	0.168	0.073	0.087	0.840	0.402
3 years old	0.461 ***	0.104	4.420	0.000	0.287 ***	0.090	3.190	0.001
4 years old	0.501 ***	0.115	4.380	0.000	0.353 ***	0.098	3.610	0.000
5 years old	0.629 ***	0.116	5.440	0.000	0.446 ***	0.099	4.510	0.000
Number of preschool children	0.070	0.068	1.030	0.304	-0.073	0.062	-1.190	0.236
Day-care fees collection rate (% of national standard	0.000	0.003	-0.130	0.898	0.003	0.002	1.180	0.237
Day-care admission rate (% of preschool children)	0.018 ***	0.004	4.720	0.000	0.018 ***	0.003	5.670	0.000
Intercept	-4.676 ***	1.050	-4.450	0.000	-3.654 ***	0.826	-4.420	0.000
rho	0.195 ***	0.068	2.875		0.313 ***	0.107	2.934	
sigma	0.672 ***	0.028	24.270		0.941 ***	0.031	30.439	
lambda	0.131 ***	0.047	2.790		0.295 ***	0.107	2.757	
Number of obs	3417				3417			
Censored obs	2581				2581			
Uncensored obs	836				836			
Log likelihood	-1967.492				-2836.017			

Table 7 Estimation Results of the Day-care Fees

	Base model			
	Coefficient	Std. Error	z	P>|z|
Unearned income	3539.891 ***	476.071	7.440	0.000
Unearned income squared	-119.281 ***	28.309	-4.210	0.000
Age of the youngest child (control: less than 1 year)				
1 year old	-3084.395	3384.194	-0.910	0.363
2 years old	-1826.153	3449.240	-0.530	0.597
3 years old	-11354.640 ***	3249.377	-3.490	0.001
4 years old	-15581.980 ***	3320.274	-4.690	0.000
5 years old	-16121.200 ***	3279.410	-4.920	0.000
Number of preschool children	-12237.100 ***	1238.605	-9.880	0.000
Day-care fees collection rate (% of national star	270.395 ***	34.192	7.910	0.000
Lambda	3494.824 *	1874.188	1.860	0.063
Intercept	14606.290 ***	4348.163	3.360	0.001
Number of obs =	424			
R²	0.456			

	Alternative model			
	Coefficient	Std. Error	z	P>|z|
Unearned income	3520.768 ***	502.050	7.010	0.000
Unearned income squared	-116.818 ***	29.882	-3.910	0.000
Age of the youngest child (control: less than 1 year)				
1 year old	-2702.581	3387.830	-0.800	0.425
2 years old	-1046.481	3431.871	-0.300	0.761
3 years old	-10831.120 ***	3261.351	-3.320	0.001
4 years old	-15032.160 ***	3352.532	-4.480	0.000
5 years old	-15680.590 ***	3291.302	-4.760	0.000
Number of preschool children	-12329.120 ***	1245.175	-9.900	0.000
Day-care fees collection rate (% of national star	271.761 ***	34.754	7.820	0.000
Lambda	-263.351	1875.132	-0.140	0.888
Intercept	14686.190 ***	4375.208	3.360	0.001
Number of obs =	424			
R²	0.451			

Table 8 Estimation Results of the Participation Probits

	Base model				
	dF/dx	Std. Error	z	P>|z|	x-bar
Mother's income (in logarithm, predicted)	0.642 ***	0.021	31.280	0.000	4.301
Day-care fee (predicted)	-0.080 ***	0.025	-3.150	0.002	2.720
City size (control: Metropolitan area)					
150000 residents or more	0.158 ***	0.032	4.990	0.000	0.322
50000 to 150000 residents	0.227 ***	0.036	6.410	0.000	0.223
Less than 50000 residents	0.226 ***	0.057	4.020	0.000	0.055
Rural area	0.351 ***	0.037	9.190	0.000	0.212
Household's net financial assets	-0.002 ***	0.001	-2.870	0.004	-3.199
Housing status (control: Detached houses)					
Owned apartment houses	0.069	0.043	1.630	0.104	0.085
Rented houses owned privately	0.092 ***	0.032	2.920	0.003	0.256
Rented houses, n.e.s.	0.108 ***	0.035	3.140	0.002	0.161
Household type: extended family	0.175 ***	0.030	5.920	0.000	0.257
Unearned income	-0.006	0.004	-1.430	0.152	5.938
Age of the youngest child (control: less than 1 year)					
1 year old	0.021	0.035	0.600	0.551	0.212
2 years old	0.057	0.036	1.620	0.106	0.170
3 years old	0.103 **	0.049	2.180	0.030	0.145
4 years old	0.120 **	0.057	2.180	0.029	0.136
5 years old	0.128 **	0.057	2.290	0.022	0.146
Number of preschool children	-0.059	0.037	-1.590	0.111	1.324
Day-care admission rate (% of preschool children)	0.004 ***	0.001	3.600	0.000	24.297
Number of obs	3417				
Log likelihood	-1358.8				
Pseudo R²	0.389				

	Alternative model				
	dF/dx	Std. Error	z	P>|z|	x-bar
Mother's income (in logarithm, predicted)	0.138 **	0.055	2.500	0.012	4.717
Day-care fee (predicted)	-0.104 ***	0.022	-4.640	0.000	2.790
City size (control: Metropolitan area)					
150000 residents or more	0.071 **	0.028	2.530	0.011	0.322
50000 to 150000 residents	0.097 ***	0.030	3.260	0.001	0.223
Less than 50000 residents	0.113 **	0.046	2.510	0.012	0.055
Rural area	0.203 ***	0.033	6.330	0.000	0.212
Household's net financial assets	-0.001 *	0.001	-1.650	0.099	-3.199
Housing status (control: Detached houses)					
Owned apartment houses	0.015	0.035	0.420	0.671	0.085
Rented houses owned privately	0.010	0.027	0.370	0.713	0.256
Rented houses, n.e.s.	-0.046 *	0.027	-1.660	0.096	0.161
Household type: extended family	0.200 ***	0.026	7.730	0.000	0.257
Unearned income	-0.010 **	0.004	-2.460	0.014	5.938
Age of the youngest child (control: less than 1 year)					
1 year old	-0.010	0.029	-0.350	0.727	0.212
2 years old	0.052 *	0.031	1.730	0.084	0.170
3 years old	0.042	0.041	1.050	0.295	0.145
4 years old	0.057	0.050	1.170	0.241	0.136
5 years old	0.071	0.051	1.420	0.155	0.146
Number of preschool children	-0.142 ***	0.033	-4.260	0.000	1.324
Day-care admission rate (% of preschool children)	0.006 ***	0.001	5.930	0.000	24.297
Number of obs	3417				
Log likelihood	-2008.0				
Pseudo R²	0.097				

Table 9 Simulation Results

	Total	By Household Yearly Income				By Estimated Wage Level			
		Less than 3.5	3.5 to 7 Million	7 to 10 Million	10 Million or more	Less than 0.9	0.9 to 1.3 Million	1.3 to 2 Million	2 Million or more
Participation rate (actual)	0.356	0.367	0.279	0.396	0.551	0.182	0.509	0.928	0.995
Base model									
Sample distribution	3417	499	1690	742	486	2477	316	235	389
Simulation 1	0.027	0.034	0.028	0.025	0.023	0.029	0.041	0.024	0.009
Simulation 2	0.140	0.122	0.141	0.148	0.143	0.157	0.167	0.097	0.034
Simulation 3	-0.136	-0.214	-0.135	-0.112	-0.098	-0.125	-0.271	-0.173	-0.078
Alternative model									
Sample distribution	3417	499	1690	742	486	2534	274	240	369
Simulation 1	0.058	0.061	0.057	0.057	0.057	0.057	0.059	0.061	0.059
Simulation 2	0.279	0.212	0.273	0.305	0.330	0.283	0.245	0.285	0.278
Simulation 3	-0.239	-0.319	-0.235	-0.218	-0.202	-0.228	-0.286	-0.268	-0.264

Notes: Simulation 1 refers to the case where the prefecture's admission rate for day nurseries was raised by 10 percent point.
Simulation 2 refers to the case where each household's nursery fees are set to zero.

Simulation 3 refers to the case where the nursery fees are uniformly set to 60 thousand yen/month irrespective of the
Simulation results are shown as differences from the originally estimated participation rate.

[論　文]

保育需要と保育の質の評価

—母親達へのフォーカス・グループ・ディスカッションの結果から[*]—

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—— 要　旨 ——

本稿は母親達に対するフォーカス・グループ・ディスカッション（FGD）及び独自に実施したアンケート調査の結果から、保育サービス需要における質と価格の関係を分析した。主な発見は以下の通りである。第1に、大卒以上で賃金水準が高い母親ほど保育の質に対するこだわりは強く、良質な保育サービスを受けるために高い保育料を支払ったり、転居したりするといった経済的な負担を厭わない傾向が観察された。第2に、大卒者とは対照的に短大卒以下の専業主婦グループは、保育料に敏感な上、保育サービスを利用する際に利便性を重視する傾向がみられた。第3に、こどもの年齢や性格によって、需要する保育サービスの内容や質の評価は異なっていた。

キーワード(key words)：保育需要(demand for childcare services)、保育の質(quality of childcare)、

フォーカス・グループ・ディスカッション(focus group discussion)

1．はじめに

　大量の待機児童の存在、利用者ニーズに合致しない認可保育所の運営実態など、保育サービスを巡ってはさまざまな問題が指摘されている。これに対応して政府は「新エンゼルプラン」や「待機児童ゼロ作戦」のもと、保育にまつわる規制緩和を実施し、民間事業者の保育市場参入と保育サービスの多様化を促進してきた。しかしながら営利企業による認可保育所への参入は現時点では少数にとどまる一方、規制緩和が保育の質の低下につながるのではないかといった懸念が子供を持つ親達から出ている。

　需給ミスマッチの結果である待機児童問題を解消するには、保育サービスの供給量を増加させる方法と価格を操作する方法が考えられる。現在の認可保育所の保育料は実際の保育コストよりもはるかに低い水準に設定されており、利用者が多大な便益を受けられるために超過需要が発生している面がある。待機児童問題の解消策として保育料体系を見直すにしても、まず、現在の保育料を親たちがどのように評価しているのかを把握することが不可欠である。

　その際に重要な問題は、保育の「質」の評価である。保育サービスは子供に対する人的資本投資の面があるので、質の問題を抜きに価格だけでその価値を評価することは困難である。それにもかかわらず、親たちが保育サービスの質を金銭的にどのように評価しているのかを定性的にあるいは定量的に分析し