

*Child Care Subsidies and Female Labor Supply*

FIGURE II: THE STRUCTURE OF CHILDCARE MARKET

Using Care Facilities		
Care Facilities (Ages 0~5)	Kindergartens (Ages 3~5)	Other Private Facilities
public daycare centers private daycare centers nursery homes	public kinder private kinder	culture centers activity centers YMCA Hakwon
Ministry of Family	Ministry of Education	No supervision
Not Using Care Facilities		
maternal care		
grand parents/relatives		
nannies, maids, babysitters		

use care facilities are cared for by public facilities due to the limited supply of public care. Although there is excess demand for public care, there exists little guidelines for priority and it is usually the case that first come first served. Only very limited number of children from legal low income families, single parent and parentless families, and adopted children are given the priority to use public care. Thus the function of public daycare centers has little difference from that of private daycare centers. For this reason, it is argued that subsidizing public daycare centers only excluding private daycare centers is unfair.

While private daycare centers do not receive government's financial support, they face the price cap. The price cap is considered to limit the scope of innovative activities of private daycare centers. Some private daycare centers impose additional fees for extracurricular activities or snacks to make ends meet while maintaining price no higher than the price cap. Others provide low quality service and charge even lower fees than the price cap to gain price competitiveness. Thus it is generally thought that the private daycare centers are more expensive and less quality than the public counterparts. Given that the private daycare centers face the price cap even though the function of public and private daycare centers do not much differ, and the majority of children who use nonmother care mode are cared for by private daycare centers, the introduction of subsidies to the private daycare centers has been insisted.

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### B. Design of the BSP

Considering the current childcare market situation and the need to increase birth rates, the introduction of new subsidies was widely supported. However, the scope and amount of subsidies within an existing subsidy framework was to be determined. After a long period of disputes, it is decided that only private daycare centers excluding other forms of care facilities receive the benefits of subsidies. The subsidies are applied only to infants first and planned to be extended to toddlers in the near future. The subsidies are provided to daycare centers instead of families, but the provision is dependent on the number of infants in each facility. The fact that the subsidies are provided only to infants that use private daycare centers enables to take advantage of the quasi experimental environment.

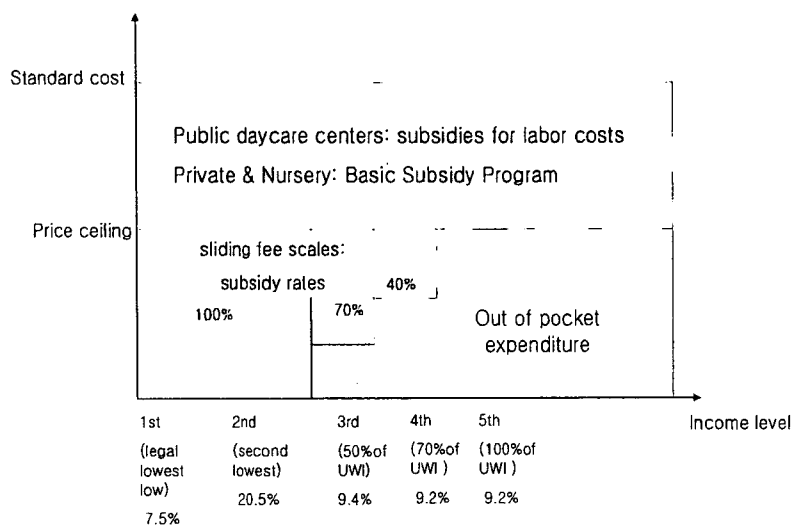
In terms of the amount of subsidies, the equivalence to the subsidies to public daycare centers is considered. The subsidy scheme is illustrated in Figure II. Given the standard costs of child care and education (standard costs hereinafter),<sup>1</sup> the BSP is set as the difference of the standard cost of child and the price cap. The price cap of the private daycare centers is set at the fee of public daycare centers. The newly introduced BSP is per child subsidies, while the existing subsidies to the public specifically cover the costs of labor. The existing sliding fee scales is maintained to help low income families with child care, and the rate is specified as the percentage of the price cap.

The amount of BSP subsidies varies with the age of children. However, it does not vary with the region, working status of the mother, or income level of the families. Even the children from families of the highest income group whose mother is a housewife can benefit from the BSP subsidies as long as they are cared for by private daycare centers. This aspect of the BSP is highly criticized because the main objectives of subsidizing childcare should be to help mothers reconcile family and work, and to provide equitable

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<sup>1</sup>The standard costs of child care and education are defined as the average expenses to maintain a decent childcare environment. The standard costs vary with the age of children.

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\*UWI: Urban Workers' Income

FIGURE III: THE DESIGN OF CHILD CARE SUBSIDIES

opportunity of childcare to the needy families. However, the policymakers recognize that the main objective of the BSP is to improve the quality of private daycare centers without removing the price cap. They impose four prerequisites to receive the BSP subsidies. First, all the teachers in daycare centers should participate in four major insurances, including national pension, national health insurance, employment insurance, and industrial accident insurance. Second, all the teachers' compensation should be as high as the minimum wages. Third, the revenue and expenses of daycare centers should be reported via e-finance system. Fourth, the staff-child ratio should be maintained, 1:3, 1:5, 1:7 for 0, 1, 2 year old children respectively.

Separate from the subsidy programs, the Inspection and Certification process started in year 2006. It aims to inspect daycare centers whether they observe the quality standards and issue certification for those facilities that pass the examination. Since it has been only

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a year or so since the process has begun and only about 32% of total-daycare centers and nursery homes applied for the process. To improve the quality of daycare centers, it is often argued that the subsidies should be provided only to those facilities that are certified.

## **III. Data and Empirical Framework**

As explained above, even though the scheme of the BSP has been highly controversial, the subsidies have been provided about one year. The main outcomes of interest focus on the impacts of the subsidy program on the families with infants, including the usage of private daycare centers, female labor supply, and the costs of child care. In this section, I present the measures of outcomes and data sets used. Then the empirical strategy is discussed.

### A. Data and Descriptive Analysis

By subsidizing daycare centers and nursery homes and improving the quality of these care facilities, four objectives are expected to obtain. First, the usage of child care facilities would increase and the market would be vitalized. According to the survey in 2004, the proportion of infants using care facilities was less than 20%, which was considered to be due to the low quality. Raising quality and maintaining low price by the BSP is expected to encourage families to use care facilities for their infants. Second, if it is easier for mothers to leave their infants in care facilities without worrying too much about the quality of care, then maternal labor supply would be easier. Thus the BSP is expected to increase women's labor supply. Finally, the quality improvement would increase the extent to which parents are satisfied with the care quality of the facilities.

To examine whether the BSP achieve these policy goals, I take advantage of a quasi-experiment environment where the BSP is introduced only to the families with infants

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cared for by private daycare centers and nursery homes. To take this approach, the pre- and post-program data sets are needed. For the pre-program data, I use the 'National Survey of Child Care and Education : Households' conducted in year 2004. This household survey collects the nationally representative sample from the families with children below 13. It includes demographic and social characteristics, and detailed information on child care and education. In particular, this data set includes whether children use any non-mother care, if so what type of child care facilities are used, and how much parents are satisfied with the care quality. To obtain a post-program data set, an equivalent data set is constructed in 2007.<sup>2</sup>

This 2007 household data set collects the nationally representative sample of families with children under age six. Due to the concerns of oversampling housewives when surveys are conducted by visits, web-based survey is instead used. According to the Ministry of Information and Technology (2007), more than 90% of people in their 20s to 40s upon which age groups the majority of the sample would fall currently use the internet. However, to resolve possible bias problem due to the web-based design, *2005 Census* is referred to match regional distribution of households with children under age six, and demographic characteristics of the mothers in sampling. In addition, based on the *2006 National Households Survey*, individuals are weighted to match income and educational distribution of these mothers. Through this process, 3000 households are collected and their demographic characteristics are presented in the Table 1.

Having confirmed that the *2007 KDI Household Survey* is consistent with other national data sets, I use both *2004 National Survey of Child Care and Education : Households* and *2007 KDI Household Survey* to present the changes in non-mother care patterns for infants and toddlers over time. It is expected that the usage of non-mother care in-

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<sup>2</sup>The Data Analysis Unit at the Korea Development Institute conducts survey, collect data, and construct relevant variables for the analysis.

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creases as the child care market grows, but the increase for the infants would be greater than that of the toddlers due to the BSP effects.

As Table 2 shows, the usage of care facilities has greatly increased over time. While the majority of infants were cared at home in 2004, 48.2% of infants use care facilities in 2007. Almost all toddlers use at least one care facilities. Looking into the type of care facilities, among those toddlers who use care facilities 27.7% in 2004 and 35.1% in 2007 attend kindergartens. However, due to the legal limitation few infants are cared for in kindergartens. Meanwhile, 13.0% in 2004 and 11.0% of infants cared by facilities use nursery homes, although the usage of nursery homes among toddlers is very low. As widely recognized, the kindergartens specialize in toddlers' early education, while the nursery homes specialize in infants' care. Even though the number of other types of care and education facilities that specialize in cognitive development through play, foreign language education, or musical instrument lessons increase, the proportion of children who use these types of facilities as their main care providers decreases. It appears that these type of facilities serve as secondary providers of care and education mainly for toddlers.

According to the Statistics on Care Facilities (2007), the number of child care facilities increased. In particular, since the BSP was introduced in 2006, the number of nursery homes has greatly increased. Among the newly opened facilities, nursery homes and private daycare centers account for 60% and 33% respectively. Namely, 93% of newly opened facilities are subject to the BSP subsidies. Due to the affluent subsidies and resulting increase in the number of these facilities, it is expected that the usage of care facilities among infants would greatly increased. It seems that this is what is observed from Table 2.

### B. Empirical Strategy

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To examine the effects of the BSP subsidies on the families taking advantage of the quasi-experimental environment, I consider the following equations.

$$(1) \quad y_{it} = X'_{it}\beta + \alpha_1 D_{07} + \alpha_2 \text{Infant} + \alpha_3 \text{Infant} \cdot D_{07} + \mu_{it},$$

where  $i$  represents an individual household and  $t$  denotes time. *Infant* indicates the households with infants and  $D_{07}$  indicates the year 2007. Considering that the BSP takes effect only on families with infants in year 2007, the interaction of *Infant* and  $D_{07}$  reflects the effects. Thus  $\alpha_3$  is the DD estimate of this regression.

Given that the households with infants are affected by the BSP when they use private daycare centers or nursery homes, it is possible to take advantage of differences in care type. Then the equation reads

$$(2) \quad y_{ijt} = X'_{ijt}\beta + \alpha_1 D_{07} + \alpha_2 \text{Infant} + \alpha_3 \text{Private} + \alpha_4 \text{Infant} \cdot D_{07} \\ + \alpha_5 \text{Private} \cdot D_{07} + \alpha_6 \text{Private} \cdot \text{Infant} \cdot D_{07} + \epsilon_{ijt},$$

where  $i$  and  $j$  represent an individual household and childcare facility respectively, and  $t$  is time. As above, *Infant* indicates the households with infants, *Private* indicates the usage of private daycare centers and nursery homes, and  $D_{07}$  indicates the year 2007. The comparison groups then are those households with toddlers without infants, those who use other types of care facilities including public daycare centers, kindergartens, and other private facilities, and the households in year 2004.  $X_{ijt}$  includes the individual characteristics including mothers' age and education, local characteristics including region, and household characteristics including non-mother income.<sup>3</sup> The effect of the BSP subsidies on the outcomes is reflected in  $\alpha_6$ , which is the DDD estimate.

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<sup>3</sup>Non-mother income is defined as household total income excluding mothers' labor earnings.

## IV. Results

### A. Child Care Arrangement

Since the BSP aims to improve the quality of infant care without raising price, the subsidies are likely to induce the usage of care facilities. As mentioned above, the increase in the number of nursery homes and private daycare centers would have increased the accessibility of families to the care facilities. To examine the effects of the BSP on the type of care, the multinomial logit regression is used based on the equation (1). The results are presented in Table 3. The base outcome is the case of not using any care facility. The first arrangement is other type of care facilities including kindergartens, private tutoring places, and culture centers. The second arrangement is public daycare centers, and the third one is private daycare centers and nursery homes that the BSP would affect most.

As presented in the table, the effects of each variable are as follows. Compared to the highschool graduates those who have education of junior college or college and above are more likely to use other type of facilities; Increase in non-mother income increases the likelihood of using other type of facilities as well, but reduces the usage of daycare centers especially the private daycare centers and nursery homes. Given that the private daycare centers and nursery homes have had lower quality, the negative correlation between non-mother income and the usage of these types of arrangement makes sense; As the youngest child in the household ages, the use of care facilities increases; Those who know about government subsidies are more likely to use the subsidized care facilities; In year 2007, there is huge increase in overall usage of care facilities; Infants are less likely to use care facilities. The coefficient of  $Infant \cdot D_{07}$  presents the DD estimate of the effect of the BSP. It shows that the BSP greatly increases the usage of private daycare centers and nursery homes, while there is little effect on the usage of the other types of arrangements.



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### B. Maternal Labor Supply

One of the most important policy objectives when subsidizing child care is to make it easier for mothers to reconcile work and family. Previous studies expected that helping with child care would increase maternal labor supply, noting that time and monetary costs of child care is a main barrier to work (Cho 2006; Kim and Won 2004). In particular, many women have answered that the reason of not working is due to child care responsibilities and the reason of not using care facilities is because they do not trust care facilities (National Survey of Child Care and Education: Households, 2004). So improving care quality without increasing price should encourage maternal labor supply. However, in an environment where the labor market is not flexible in the sense that the entry and exit of women into the labor market is not easy and few part time work is available, subsidizing child care without providing further incentives to work might not lead to an increase in maternal labor supply.

Many countries require labor force participation or equivalent activities including job search and training as prerequisite for receiving subsidies for child care. Even the traditional welfare states that emphasize universal public child care provide opportunities to use public facilities only to working mothers. Childcare subsidies in the countries where workfare is emphasized, are provided to low income families contingent upon their effort to work. However, the BSP like other child care subsidies in Korea does not impose any requirement to induce maternal labor supply. Thus it is expected that the BSP might have little impact in increasing women's labor supply even though it significantly increases infants' use of care facilities.

To examine the effects of the BSP subsidies on maternal labor supply, I consider three specifications depending on the outcome variables. The results are presented in Table 4. The first column shows the probit regression whose dependent variable is dichotomous

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outcome indicating whether the mother works. The second column shows the tobit regression considering the censoring problem of hours of work. Finally, the last regression is multinomial logit of part and full time work whose base outcome is 'Not working.' The findings are consistent with previous research. Women's education has significantly increases labor supply. In particular, women with college and above education are more likely to work full time and longer hours than the other groups; the increase in non-mother income significantly reduces the likelihood of working both part- and full time, and working hours. It shows that the women tend to be a secondary earner, whose labor supply is highly dependent on household income. The higher the number of adults and the lower the number of children in the household, and the older the age of the youngest child, mothers are more likely to increase labor supply. After controlling for the local unobserved characteristics, the regional unemployment rate shows a negative correlation with women's labor supply.<sup>4</sup> This is considered to be due to the low cost and flexibility of female labor supply, which is more demanded during economic downturn.

Compared to year 2004, maternal labor supply has increased in year 2007. The labor supply is higher for those women whose children are cared in daycare centers and nursery homes than the other counterparts. Since the daycare centers and nursery homes are legally required to provide care service for 12 hours a day, it is easier for working mothers to leave children in these facilities. The effect of the BSP is reflected in the coefficient of the interaction of (*Private + Nursery*), *D<sub>07</sub>*, and *Infant*. The findings show that the subsidies have little impact on maternal labor supply. The maternal labor supply is hardly affected by the subsidies because non-working mothers can take advantage of the subsidies, and increasing number of women use day care centers regardless of their labor market status.

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<sup>4</sup>The negative relationship between unemployment rate and women's labor supply is often observed. Cho et al. (2007) also finds that the wage rates and labor supply of teachers in child care facilities increase as the local unemployment rate rises.

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### C. Cost of Child Care

Reducing mothers' opportunity cost of working by child care subsidies is expected to increase maternal labor supply. However, as presented above, the findings show that there is little effect of the BSP on maternal labor supply. So the effect of the BSP on child care costs is investigated. The price of private daycare centers and nursery homes which was subject to the price cap was generally higher than the fees of public daycare centers. However, with the introduction of the BSP, the price cap of the private and nursery homes is lowered to the equivalent level to the fee of public day care centers. Three measures to capture the costs of child care are used. The first one is the monthly fee that each household regularly pays for each child. The second one is the total monthly fee that includes additional costs including fees for textbooks, bus, snacks, and special activities on top of the monthly fee. The third one is total monthly expenditure on child care that includes fees paid to child care facilities, and individual costs paid to nannies and tutors.

The results are presented in Table 5. The high school and junior college graduates pay similar amounts for child care, while college graduates spend about 10.9~14.2% significantly more. In terms of total expenditure on care and education, compared to high school graduates, junior college and college graduates mothers spend 6.4% and 16.7% more on care and education, respectively. This shows that mother's education is significantly associated with investment in children. When non-mother household income increases by 1%, the fees and expenditure on children increases by 0.25~0.34%, which implies child care and education is inelastic. The monthly payment to the facilities is negatively related with the number of children and the age of the child, and positively related with the number of children in the household. However, total expenditure on care and education is not so much affected by the number of adults in the household. As the child gets older, the payment to facilities decreases reflecting the standard costs declines

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with age, but the total expenditure on care and education increases.

A child in public daycare centers, compared to the counterpart in other type of private facilities, pays lower fee and total payment by 17.6% and 21.8% respectively. This shows that not only fees for public daycare centers are lower, but also additional payment to the facilities are lower for public. However, total expenditure on care and education of public is lower than that of other type of private facilities only by 9.3%. This implies that the households who could save money by using public care spend relatively more amount for education, reducing the gap in expenditure. Meanwhile, those children in private daycare centers and nursery homes spend significantly higher amount than those in other type of private facilities. They do not differ much in total expenditure on care and education though. The effect of the BSP on child care costs is that the overall payment to private daycare centers and nursery homes in 2007 has a little decreased. However, the BSP hardly affects of expenditure on families with infants. Although the price cap is lowered, increasing number of facilities report that they charge more than the price cap, and they impose extra fees. Thus the BSP subsidies turn out to do little to reduce the cost of care.

## **V. Conclusion**

The low fertility rate in Korea seems to justify almost any kind of program as long as it is pronatal. The design and policy goals of the program are often overlooked. Although child care subsidies usually have distinct policy objectives such as increasing maternal labor supply, and making care service more affordable and suited to cognitive development of children, the design of the BSP does not consider these aspects. As a result, the findings suggest that the BSP hardly increases maternal labor supply and has little impact on reducing child care costs, even though it widely increases the use of private daycare centers and nursery homes that are subject to subsidies. Given that the use of subsidized

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care facilities increases while monetary costs are similar, it is inferred that the quality of care facilities should have improved. The impact of the BSP on quality of facilities and the cost-benefit analysis of the BSP would be worth investigating for further research.

Given current findings, I present a few policy suggestions. Since the BSP targets private daycare centers and nursery homes just because their quality is lower and price is higher than the public counterparts, the fundamental cause of this discrepancy should be addressed. First, the public daycare centers should serve the disadvantaged groups first rather than competing with private facilities. If public daycare centers prioritize serving children from low income, broken, and single parent families, providing subsidies to public prior to private can be justified. Second, the regulations such as price cap that prevent the development of child care market should be removed or raised. At the same time, however, other regulations such as setting quality standards and certifying care teachers should be implemented and settled.

To encourage maternal labor supply, the design of the BSP can be modified to provide more incentives to work. Higher subsidy rates for women who works or engage in equivalent activities can be an option. Given that the child care costs hardly change despite the subsidies, providing subsidies to the families instead of facilities so that the families obtain more choices in selecting care facilities may help. This is likely to induce more active competition among care facilities, which encourages innovative ideas of private care market to reduce costs and improve quality.

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Table 1: SAMPLE COMPARISON

Variables	Families with Children under Six	
	2006 National Household Survey	2007 KDI Household Survey
Mothers' Age	32.8	31.8
Mothers' Education		
High school graduates	52.4	51.5
Junior college	20.4	20.6
College and above	27.2	27.9
Mothers' LFP	33.3	34.8
Num. of Total Children	1.76	1.71
Num. of Children 0~5	1.27	1.27

Table 2: USAGE OF NON-MOTHER CARE FOR INFANTS AND TODDLERS

			2004			2007		
			Infants	Toddlers	Total	Infants	Toddlers	Total
Proportion of Non-mother Care			14.1	82.5	51.9	48.2	96.5	72.4
Type	child care centers	public	18.9	17.0	17.2	18.4	22.3	21.0
		private	39.6	33.1	33.9	37.5	29.9	32.4
		nursery homes	13.0	1.1	2.5	11.0	1.0	4.3
		kinder	1.2	27.7	24.4	3.7	35.1	24.7
		others	27.2	21.2	21.9	29.4	11.8	17.6

† The proportion ratio is calculated as the number of children in each facilities among those who use non-mother care.



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Table 3: MULTINOMIAL LOGIT: CHILD CARE ARRANGEMENTS

dependent=type	Coefficient (Standard Errors)		
	1 other facilities	2 public daycare	3 private & nursery
Mothers' Age	0.142 (0.171)	-0.061 (0.167)	0.223* (0.120)
Mothers' Age Squared	-0.003 (0.003)	-0.000 (0.003)	-0.004** (0.002)
Mother's Edu (junior college)	0.322** (0.132)	0.217 (0.143)	0.033 (0.112)
Mother's Edu (college+)	0.308** (0.125)	0.136 (0.139)	-0.035 (0.108)
Non-mother Income	0.126** (0.053)	-0.092 (0.062)	-0.101** (0.051)
Num. of Adults	-0.076 (0.086)	-0.060 (0.078)	-0.035 (0.060)
Num. of Children	-0.112 (0.096)	-0.037 (0.103)	-0.102 (0.085)
Age of the youngest	1.046*** (0.075)	0.844*** (0.081)	0.574*** (0.061)
Unemployment rate	0.087 (0.289)	0.836*** (0.310)	0.345 (0.259)
knows about subsidy	0.235 (0.143)	0.743*** (0.167)	0.398*** (0.116)
Year 2007 ( $D_{07} = 1$ )	0.561*** (0.208)	1.336*** (0.235)	0.715*** (0.211)
<i>Infant</i>	-2.235*** (0.263)	-1.809*** (0.325)	-2.106*** (0.242)
<i>Infant * D<sub>07</sub></i>	-0.091 (0.171)	-0.333 (0.167)	0.651*** (0.120)
constant	-4.246 (2.980)	-3.904 (2.883)	-4.823** (2.118)
N	4,907		

† Locality dummies are included, but not presented here due to the limited space.

†† The base outcome is not using any care facility.

\*\*\*, \*\*, \* denotes statistical significance at 1%, 5%, 10% respectively.

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Table 4: EFFECTS OF BSP ON MATERNAL LABOR SUPPLY

dependent=labor supply	Marginal Effects (S.E.)	Coefficient (S.E.)	Coefficient (S.E.)	
	(1) Probit	(2) Tobit	(3) multinomial logit	
Variables	labor force participation (yes=1)	hours of work	part time	full time
Mothers' Age	0.192 (0.124)	6.578** (2.971)	0.018 (0.194)	0.280** (0.139)
Mothers' Age Squared	-0.003 (0.002)	-0.090** (0.045)	-0.000 (0.003)	-0.004* (0.002)
Mother's Education (junior college)	0.274** (0.105)	2.964 (2.384)	0.030 (0.166)	0.355*** (0.116)
Mother's Education (college+)	0.475*** (0.102)	10.032*** (2.232)	0.212 (0.158)	0.581*** (0.110)
Non-mother Income	-0.369*** (0.050)	-8.840*** (2.232)	-0.240*** (0.083)	-0.421*** (0.051)
Num. of Adults	0.200*** (0.071)	5.961*** (1.338)	0.100 (0.106)	0.231*** (0.076)
Num. of Children	-0.271*** (0.079)	-6.895*** (1.698)	0.102 (0.119)	-0.423*** (0.088)
Age of the youngest	0.122** (0.056)	2.049* (1.211)	0.197** (0.086)	0.085 (0.062)
Unemployment rate	0.467** (0.232)	11.600** (5.101)	0.955** (0.353)	0.261 (0.254)
Year 2007 ( $D_{07} = 1$ )	0.500*** (0.139)	3.466 (3.135)	0.605*** (0.220)	0.459*** (0.152)
<i>Infant</i>	0.143 (0.317)	-0.611 (7.148)	0.166 (0.522)	0.106 (0.348)
<i>Public</i>	0.437*** (0.128)	9.788*** (2.801)	0.554*** (0.194)	0.382*** (0.142)
<i>Private + Nursery</i>	0.717*** (0.174)	17.504*** (3.785)	1.013*** (0.241)	0.564*** (0.193)
<i>Infant * D<sub>07</sub></i>	-0.006 (0.328)	5.013 (7.366)	-0.245 (0.547)	0.063 (0.358)
<i>(Private + Nursery) * D<sub>07</sub></i>	-0.286* (0.228)	-7.608 (4.958)	-0.917*** (0.340)	-0.029 (0.251)
<i>(Private + Nursery) * Infant</i>	0.495 (0.463)	11.219 (8.805)	0.404 (0.602)	0.553 (0.436)
<i>(Private + Nursery)* Infant * D<sub>07</sub></i>	-0.490 (0.463)	-11.731 (10.119)	0.190 (0.720)	-0.719 (0.505)
constant	-5.444** (2.260)	-155.715*** (52.770)	-6.766* (3.551)	-5.961** (2.520)
N	2,653			

† Locality dummies are included, but not presented here due to the limited space.

†† The base outcome for the multinomial logit is not working.

\*\*\*, \*\*, \* denotes statistical significance at 1%, 5%, 10% respectively.

Table 5: EFFECTS OF BSP ON CHILD CARE COSTS

Variables	(1) Monthly Fee	(2) Total Monthly Payment	(3) Total Expenditure on Care & Education
Mothers' Age	0.075* (0.040)	0.056* (0.032)	0.069* (0.040)
Mothers' Age Squared	-0.001* (0.001)	-0.001* (0.000)	-0.001* (0.001)
Mother's Education (junior college)	0.038 (0.029)	0.020 (0.025)	0.064** (0.029)
Mother's Education (college+)	0.143*** (0.027)	0.109*** (0.023)	0.167*** (0.028)
Non-mother Income	0.121*** (0.013)	0.087*** (0.010)	0.120*** (0.012)
Num. of Adults	-0.055*** (0.019)	-0.039** (0.017)	0.005 (0.020)
Num. of Children	-0.215*** (0.022)	-0.036*** (0.020)	-0.262*** (0.022)
Age of the the child	-0.122*** (0.016)	-0.036*** (0.014)	0.050*** (0.017)
Unemployment rate	0.050 (0.061)	0.062 (0.051)	0.015 (0.060)
Year 2007 ( $D_{07} = 1$ )	-0.075** (0.036)	0.158*** (0.029)	0.061*** (0.152)
<i>Infant</i>	-0.075 (0.089)	0.071 (0.081)	-0.356** (0.154)
<i>Public</i>	-0.176*** (0.035)	-0.218*** (0.029)	-0.093** (0.036)
<i>Private + Nursery</i>	0.088** (0.035)	0.058** (0.029)	0.038 (0.034)
<i>Infant * D<sub>07</sub></i>	-0.154 (0.100)	-0.250*** (0.090)	-0.009 (0.165)
<i>(Private + Nursery) * D<sub>07</sub></i>	-0.032 (0.048)	-0.075* (0.040)	-0.023 (0.047)
<i>(Private + Nursery) * Infant</i>	-0.147 (0.112)	-0.202* (0.105)	0.347** (0.173)
<i>(Private + Nursery) * Infant * D<sub>07</sub></i>	-0.147 (0.112)	0.082 (0.126)	-0.197 (0.192)
constant	11.690*** (0.691)	11.442*** (0.564)	11.172*** (0.696)
N		3,530	3,865

† Locality dummies are included, but not presented here due to the limited space.

\*\*\*, \*\*, \* denotes statistical significance at 1%, 5%, 10% respectively.

厚生労働科学研究費補助金（政策科学総合研究事業）  
分担研究報告書総括研究報告書

少子化研究会

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研究要旨

平成 19 年 5 月から平成 20 年 3 月までの間に計 10 回開催し、少子化という多角的な議論が必要なトピックに対して、経済理論、制度設計、政策立案、国際比較を中心に活発な議論を行った。

A. 研究目的

「少子化」を研究対象としてモデル構築や統計解析を行うには、まず少子化現象がどのようなメカニズムで生起するのかを明らかにしなければならない。これらの観点から、本研究では、様々な研究背景を持つ研究者に協力を得て、研究会の運営を行った。

B. 研究方法

主任研究者と分担研究者で話し合いの上、本研究を遂行するのに必要な知識を吸収するために研究者を選び、公演を依頼した。研究会では1時間の報告と1時間の討論を行い理解を深めた。

C. 研究結果

少子化の要因の一つに晩婚化が挙げられるため、わが国の結婚に関する実証研究を 2 本入れた。またわが国の少子化に対する政策の歴史的背景と、到達度を理解するために、制度に関する報告を 2 本依頼した。また国際比較を可能にするために、韓国の少子化政策の評価の論文と、前述の制度の報告にはドイツの制度に関する報告があった。包括てきな経済メカニズムを明らかにするためには、理論モデルの構築は不可欠で、そのために子供を資産や資源と捉えてライフサイクルモデルの構築をするための理論モデルのレビューが 1 本、実際の理論モデルに関する報告が 2 本あった。さらに、子供の成長過程で出てくる問題を考慮するために、開発途上国の報告も 2 本含まれ、女性の自律性と出生率の関係につい

て議論した。

D. 考察

わが国については、女性の労働市場参加支援、児童手当など政策が行われてきたがまだ十分な政策評価分析の蓄積が行われていない。また、出生率と女性の労働市場参加率の関係をみるだけでは、少子化現象の全体を理解することができないことがわかった。

E. 結論

都市と地方の差や、財の種類や質をコントロールした上で出生率の分析を行うことは妥当であることがわかった。

F. 健康危険情報

該当しない。

G. 研究発表

分担研究者が第 2 回少子化研究会で、「初婚のタイミングの決定要因一親の責任、自分の責任」を報告、主任研究者が第 9 回研究会で、「On the Persistence of Low Birthrate in Japan- A General Equilibrium Approach」を報告した。

2. 学会発表

該当なし。

H. 知的財産権の出願・登録状況  
(予定を含む。)

該当しない。