

The Effects of Father's Parental Leave on the Second Birth in Korea

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Abstract

This paper analyzes the effects of father's parental leave on the second birth using Korea Labor and Income Panel Study (KLIPS). Unlike previous studies, this paper estimates the effect of male parental leave. The results showed that availability of male parental leave has negative effect to second birth. We could not specify the pathway of negative effect of father's parental leave economically, but this result implies that probably there is a negative signaling effect of opportunity cost of not working.

Keyword : WLB policy, male parental leave, second birth

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1. Introduction

Throughout the 2000s, the total fertility rate (hereafter TFR) of Korea has been declined and low fertility continued. Feeling the threatened by low fertility trend, the Korean government came up with countermeasures such as childbirth grant, Work-Life Balance (hereafter WLB) Policy, and childcare policy. Among them, the WLB policy, which is called family friendly policy or maternity protection policy, is made for improving life quality of women, expansion of female employment. Since 2005, when the lowest fertility ever in Korea that was called '1.08 shock', government establishes 'Plan for Ageing Society and Population' (hereafter PASP) every 5 years. Recently announced the 3rd PASP is to be implemented by 2020 and its one of main strategy is eliminating blind spot of WLB policy to increase fertility.

WLB policies have been tried for compatibility of work and family life, but they were not effective. <Table 1> shows the father's parenting time of OECD countries. Korean father's parental time with children is only 6 minutes a day on average. It is less than quarter of the OECD average of 47 minutes. This means that fathers' participation in childcare is hardly done realistically. The WLB policy, which aims to increase the TFR through reconciliation of work and family life of working parents, is not functioning properly.

[Insert Table 1]

Under these circumstances, recently announced 3rd PASP tries to reinforce father's parental leave to increase fertility rate as well as facilitate reconciliation of work and family life by giving more incentive and regulation for both workers and firms. These changes in government policy will influence the behavior of the policy targets. However, there are few studies that analyze the effects of parental leave of male workers on births in Korea. For this reason, this paper tries to estimate the effect of father's parental leave. And the reason why this paper focuses on the second birth is, in Korea, married couples generally have their first child but having an additional child is part of choice. Also, newly born babies are born mostly from married couple. This means if second birth in married couple is increasing, it significantly affects to TFR.

2. Literature

Recent researches find out that there's a tendency of re-increase in fertility in developed countries (Myrskylä et al, 2009; Luci-Greulich and Thévenon, 2013, 2014; Fox et al, 2015). Myrskylä et al. (2009) concentrate on the relationship between HDI (Human Development Index) and fertility. The positive HDI-fertility relationship implicates that once country reaches very high advanced development stages, that country has potential to reverse low fertility declines. Also, Luci-Greulich and Thévenon (2014) found the inverse J-shaped pattern in GDP per capita against those of total fertility. They found empirical evidence that economic development can slightly increase fertility rate. But they point out the countries which show inverse J-shaped pattern generally facilitate reconciling work and family life.

Sweden is one of the countries that well established system and institutions, and also has almost replacement fertility rate. In this reason, many researchers focus on the demographic changes of Sweden (Hoem, 1990, 2005; Andersson et al., 1993; Duvander and Andersson, 2005; Duvander et al., 2010; Hobson et al., 2011). Hoem (1990, 2005) and Andersson et al. (1993) addressed that combining the economic development and generous family policy strongly encouraged additional birth. Thus, Duvander and Andersson (2005) and Duvander et al. (2010) point out parental leave can increase additional births. Hobson et al. (2011) interviewed parents in Sweden and Hungary which have similar family policy but different fertility rate. According to the result, the reason why Sweden has higher fertility is that there are much stronger collective agreements on job security of parents who use parental leave. They emphasize stable employment position as well as generous policy is important. These studies argue that combining work and family life is critical factor of raising fertility.

There are studies that maternity leave and parental leave is effective policy to raise fertility (Averett and Whittington, 2001; Adserà, 2004; Risse, 2006; Wong et al., 2010; Bratii and Tatsiramos, 2012; Matysiak and Szalma, 2014). These studies showed the same conclusions that maternity leave and parental leave directly increase the probability of births. Especially, Bratii and Tatsiramos (2012) and Matysiak and Szalma (2014) focus on the progression to second child. Bratii and Tatsiramos (2012) found that women who delay their first birth have lower possibility to give birth to second child, but a higher availability of

WLB policy such as part-time opportunities, long maternity leave, availability of public child care raises the probability of having second birth for those women. Matysiak and Szalma (2014) analyze the effects of parental leave on the progression to the second birth by comparing Hungary and Poland. Hungary granting parental leave and benefits to all parents, irrespective of their previous working history. While, Poland offers flat-rate benefits only to parents in the greatest financial needs. This study showed Hungarian parental leave system which is more generous does have positive effect on the second birth decision.

The previous studies in Korea showed mixed results. Most of studies showed that WLB policy including parental leave has positive effect to additional births (Cheon, 2005; Yoo, 2009, 2010; Kim et al., 2011; Ma, 2014; Han and Lee, 2015). There are also studies showing that WLB policy or parental leave has no effect (Chung and Chin, 2008; Joo et al., 2010; Lee, 2011; Jang and Lee, 2013) or negative effect (Chung, 2012) on additional births. However, all of these studies are focused on female workers or conducted on women. This study is different from previous studies in the sense that this study analyzed the impact of availability of WLB policy of male workers as well as female workers. KLIPS data, which is used for this paper, include variables that the availability of WLB policy. These variables allow estimating the effects of availability of policy on childbirth by gender.

3. Parental leave and maternity leave system of Korea

3.1 Maternity leave system

Maternity leave is a policy that makes a pregnant female worker avail herself of a 90-day leave before and after childbirth. If a woman is pregnant with more than twins, the employer shall grant her 120 days of maternity leave. Even if women miscarriage or stillbirth, she can use maternity leave either. Where a male worker requests a maternity leave, on the grounds of his spouse's giving birth, the employer shall grant at least 3 and or more than 5 days. In such cases, he shall be paid for the first 3 days out of the period of leave used. The key clause is that employer shall not impose any disadvantage on a female

worker as a result of childbirth. Also, a business owner shall reinstate a pregnant worker to the same position or to work for which the wages are at the same level as those paid before the pregnant worker took her maternity leave after the end of thereof.

The requirement for maternity leave is that the insured worker's qualifying days in covered employment as of the end date of such leave shall be at least 180 days. The first 60 days (or 75 days for women who are pregnant with more than twins) of a period of maternity leave shall be stipendiary. The benefits of maternity leave shall be payable in an amount equal to the insured worker's ordinary wage for the applicable period. Maximum amount of maternity leave benefits is KRW 4,500,000. In the case of more than two babies, the maximum amount is KRW 5,400,000. If the worker's hourly ordinary wage is less than the hourly minimum wage under Minimum Wage Act applicable at the time when the period of the maternity leave begins, then applying the hourly minimum wage.

3.2 Parental leave system

Parental leave is a policy that let workers parenting their child who is under 8 years of age or who is attending the second grade of elementary school. And the period of parental leave shall not exceed 1 year and shall be included in the worker's continuous employment period. The key clause of parental leave is the prohibition of the disadvantageous measures against workers who take parental leave. Also, when a worker completes a period of parental leave, the employer shall reinstate the worker concerned to his/her former position, or to any other position that pays the same level of wages.

The requirements of parental leave are similar to maternity leave. The insured worker's qualifying days in covered employment as of the commencement date of the parental leave shall be at least 180 days. Adding to this, in case where insured worker's spouse is also an insured worker, the latter cannot be granted 30 or more days of parental leave for the same child, or be granted 30 or more days of reduced working hours. Also, if worker's work period at the relevant business falls shorter than 1 year prior to the date on which parental leave is intended to commence or worker whose spouse is already on parental leave for same infant, parental leave is not permitted. The amount of monthly parental leave benefits shall

be equivalent to 40% of the ordinary monthly wage as of the first day of the parental leave. The maximum limit is KRW 1,000,000 per month; minimum limit is KRW 500,000 per month. The amount of benefits shall be calculated by multiplying the amount calculated on a daily basis of 40% of the monthly ordinary wage by the actual period of the leave in that month. An unusual point of parental leave benefits is 25% of total benefit amount is provided after 6 months the parental leave period is ended and return to work. During the parental leave period, only 75% of benefit is provided.

There is special case called month of father system that if parents take turns taking parental leave for the same child, the maximum parental leave benefits for the first 3 months are raised to KRW 1,500,000. Also since 2017 July, month of father system has been strengthened, which maximum benefit of parental leave for the second birth was increased up to 2,000,000 KRW for 3 months to encourage male workers to use parental leave.

[Insert Table 2]

4. Data

4.1 Data and method

The data are used from Waves 14~19 of Korea Labor and Income Panel Study (KLIPS)³. KLIPS is a longitudinal survey of a representative sample of Korean household and individuals living in urban area. The 1st survey was launched by the KLI (Korea Labor Institute) in 1998 with a 5,000 household (all members aged 15 or older of the 5,000 households are surveyed). KLIPS contains fruitful information that the characteristics of households as well as the economic activities, labor movements, income, expenditures, education, job training, and social activities of individual. Furthermore, as a panel data, KLIPS allows keeping the track of individual and household behavior such as job history and birth history. In addition, there are questionnaires related to WLB policy in KLIPS, which are suitable for this

³ A description of KLIPS is given on the homepage. (https://www.kli.re.kr/klips_eng/contents.do?key=251)

study.

The subject of analysis is married households which gave first birth in 2010~2012. Latest KILPS survey is conducted in 2016 (19th wave), the time of first childbirth was adjusted based on the national average period of first birth to second birth which is 3 years (Ministry of Health and Welfare, 2009). According to the study of Ma (2014) using KLIPS, the probability is significantly decreased 5 years after the first birth. In addition, the current system is based on the revisions in 2010, so the reference year 2010~2012 seems appropriate. The selected households were then examined for the birth of second birth by 2015, and dummy variable with a value of 1 if the second child was born was created and set as a dependent variable. As dependent variable is binary, logit model is used for estimation.

Main independent variables are availability of using maternity and parental leave. This paper mainly focuses on the father's parental leave, but maternity leave is added to the main independent variable because in principle, maternity leave is also provided when parental leave is provided. These are dummy variables which are 1 represents possible to use, 0 represents impossible to use. There are some of surveyed answered that they don't know whether company provide maternity leave or parental leave. This case is considered they cannot receive maternity leave or parental leave. Because if workers witness that their coworker uses maternity leave or parental leave once, they would have known the information about these policies but the answer 'don't know' means that no one has used maternity leave or parental leave. Also, we consider maternity and parental leave are not available if their working status is self-employed or not working.

Control variables in this paper can be divided into 2 groups: demographic and income related variables that describe characteristics of parents and household. Demographic variables are gender of first child, age of parents, years of education of parents. Gender of first child is dummy variable that has value of 1 if first child is boy, 0 otherwise. To test the robustness of coefficient of main independent variables, three dummy variables which are self-employed, residence in capital area, labor force participation of mother are added. Income related variables are household income and net asset. Each variable is measured in million KRW and adjusted by Consumer Price Index published by the Bank of Korea. The measurement point is the time when women deliver the first child.

4.2 Descriptive statistics

<Table 3> shows descriptive statistics of household who gave first birth. Total number of household is 218, 139 of them gave second birth and 79 of them did not. The mean age of women who gave birth to second child is around 32, but the mean age of who was not is 33. Likewise, the mean age of men who gave birth to second child is about 34, but the mean age of who was not is 35. Household with one child has more income and net asset, this because couples with one child is older than couples with two children. Couple's years of education are similar with mean of national years of education.

[Insert Table 3]

<Table 4> summarizes the number of persons who answers the provision and availability of maternity leave and parental leave. Interesting thing is female workers mostly answered that they are provided or can use maternity and parental leave. And if firm provide maternity leave or parental leave to female workers, they also can use maternity leave or parental leave. Contrast to this, less than half of male workers answered that they are not provided maternity leave or parental leave from their job, also less than a third can use maternity leave or parental leave. Despite the law guarantees both male and female workers rights, there is gap between genders. In order to understand this gender difference, it is needed to examine the questionnaire in detail. The questionnaires in KLIPS basically check the awareness of WLB policy. Specifically, the question as follows: "Please mark each policy below whether your job provides it. If your job provides it, mark whether you can use it." Therefore, the results of the survey will vary depending on whether or not the workers are aware of each policy. Even if company provides WLB policy, if workers do not know, it appears that company does not provide policies. In this point of view, the gap between genders seems to be due to the perceptions of workers that who the main caregiver is. Like men, women also want to continue to work after childbirth. Since female workers perceive themselves as a main caregiver, they will seek all means to combine work and parenting. As part of this, they invest more time to gather information about maternity leave and parental leave which are the most typical system in the WLB policy. This means female workers are more aware of maternity leave and parental leave. The result

of <Table 4> also can be interpreted as government needs to promote the WLB policy especially to male workers.

[Insert Table 4]

5. Results

<Table 5> shows the results of estimation. In the analysis, the household income and household net asset did not have effect on second birth. This means women consider other factors more than income or assets in decision of second birth. That is to say, when fertile women decide to give birth to second child, not only the opportunity cost in labor market but also household economic power is not a central consideration. Also, age of mother is negatively correlated with second birth. It is natural result because delayed childbirth would be dangerous to women biologically. Interesting finding is that preference for sons appears to have weakened. The gender of first child that indicates preference for male has no statistical significance. We estimate 3 different equations that differ only in independent variables which is to testing the robustness of main independent variables. The size, sign, and significance of the main independent variables are maintained even if other variables are added, which is robust result.

[Insert Table 5]

As countermeasures for low fertility, the effectiveness of maternity leave and parental leave has been confirmed by previous studies and Korean government tried to adapt maternity leave and parental leave as part of policies to increase fertility rate. But in Korea, it seems that parental leave is negatively related to second birth. In order to examine what this negative relation derives from, we analyzed the characteristics of household and male workers by the availability of parental leave. <Table 6> is another descriptive statistics which is the characteristics of male workers by availability of parental leave. In the case of responding that they can use parental leave, not only the household income and net asset, but also their earning income is higher. Furthermore, the proportion of regular employees was high, and the size of the companies in which the worker worked was also larger. The results of the analysis of <Table 5> and <Table 6> can be interpreted as the probability of second birth is lowered in the household where

the male worker works relatively stable work place. There might be a negative relation between availability of male parental leave and second birth since workers who answered parental leave is available have to give up larger amount of income because the upper limit of parental leave benefit is existed. Also, high income can be seen as worker accumulates a relatively large amount of human capital which is specialized in labor market. However, the use of parental leave may not only reduce the opportunities that accumulate the human capital, but also reduce human capital itself. This is one possible reason for the negative impact of male parental leave. While male workers are aware of the adverse effects due to the use of parental leave, and if they fully anticipate an increase in household consumption due to childbirth and parenting, the availability of male parental leave may have a negative impact on additional births.

[Insert Table 6]

These results are in contrast to the former studies because the availability of parental leave is analyzed for male and female workers separately for the first time. This paper conducted a more rigorous analysis and found a negative correlation between the second birth and male parental leave. To explain these results rationally, we tried several attempts but we could not specify the channel and structural process of negative relation between father's parental leave and second birth decision making in household. But negative sign of estimation implies that parental leave system need to be amended in some point. And there are several parts to take into account. Before starting the discussion, it is necessary to keep in mind that male workers may have already went through all the things we will discuss below at the time of their first childbirth because the estimation results focus on the second birth.

Firstly, we can consider the institutional part which parental leave system is insufficient compared to other countries. Insufficient length of leave period or small amount of benefit might cause negative perceptions toward parental leave. In <Table 7>, Korea has the longest parental leave period among OECD countries. But 32 countries listed in the <Table 7>, there are only 7 countries with an income replacement rate of less than 50% and Korea is one of them. Until recently, many of the workers pointed out financial issues as the most difficult part of parental leave. Workers placed financial difficulties at the top of their list when deciding on parental leave and they cited financial support as the most needed help (Korea Population and Health Welfare Association, 2018). These results indicated that the amendment of 2011, which raised parental leave benefits to 1 million KRW, was not enough to have a positive impact.

[Insert Table 7]

Secondly, there might be no atmosphere to apply for parental leave freely. To use parental leave, workers should prepare many things that make an appropriate environment as well as the documents for application. Kim and Kwon (2015) reported interesting research about in-depth interview of fathers who have used or using parental leave. According to their study, fathers consider various conditions to take parental leave and they prepared it with great resolution. At first, when they file an application form of parental leave, their supervisor implicitly urges to resign. Even worse, parental leave is a frequent cause of retirement in small and medium-sized businesses. Further, workers still concern about the implicit penalties resulting from the use of parental leave. Even if their job provides parental leave and they can use it, the result of using parental leave negatively affected in promotion or evaluation. Although discrimination and penalty caused by parental leave are explicitly prohibited by law but it is actually happening.

Lastly, it is hard to apply for parental leave because it is rarely used by male workers in reality. <Table 8> denotes users of paid parental leave. According to <Table 8>, male share of paid parental leave recipients is only 4.45%. These figures indicate that men are hardly used the WLB policies even if they have the right to use WLB policies guaranteed by the law. Also, in the study of Kim and Kwon (2015), most of male parental leave users in the study are the first case in their jobs. There is a true picture of male workers who are not able to participate in childcare, and even work and life. Even if the original purpose of the policy is to protect female workers, if the policy is changed to a policy for all workers as the object is enlarged, male worker's the compatibility of work and family life also should be guaranteed. If these trends continue, the government's goal of supporting work and family reconciliation through WLB policy will be difficult to achieve.

[Insert Table 8]

Such tendency is also found in government agency that should take the lead in national policy implementation. <Table 9> shows the ratio of male parental leave users of government ministries. The average ratio is 2.54%, the highest ratio is only 10.3% of Ministry of Gender Equality and Family in 2015. Even worse, there is no male parental leave user in 2015, Ministry of Unification. In order for the government to change social perception towards male parental leave and to encourage it, there must be a

change from public service society first. By doing so, government will be able to progress gradually through the cooperation of the private sector.

[Insert Table 9]

6. Conclusion

Work-Life Balance (WLB) policies are being implemented as part of 'Plan for Ageing Society and Population' (PASP) which is made for countermeasures to low fertility and ageing population. PASP concentrated on maternity leave and parental leave as WLB policy for childbirth encouragement policy. Particularly, parental leave for male worker is encouraged by introducing incentive system called month of father. Since the revision or introduction of laws changes the behavior of the subject, it is necessary to estimate its effect relationship. Therefore, this paper investigates the effects of father's parental leave on the second birth using Korea Labor and Income Panel Study (KLIPS).

Through the analysis, it was shown that availability of using parental leave of father has negative effect to second birth. This can be interpreted that the opportunity cost of using parental leave indirectly effects negatively to second birth. The essential part of WLB policy is making possible to working parents raise kids during they have job and continue to working. In reality, WLB policy is merely nominal and the purpose of introducing the WLB policy has not been fully realized. We could not found economical explanation for the negative sign of father's parental leave, but this result indicates that there might be a need to revise the parental leave system. Workers continuously demanded raise the parental leave benefit and especially, there is no social environment in which male workers can use parental leave. This is exactly against the recent inverse J-shaped patterns. For the economic growth as well as to increase fertility rate, reconciling work and family life is the first thing must be done.

Unlike previous studies, this paper focuses on father's parental leave and derives meaningful results, but the limitations are also clear. First, this paper could not specify the reason why the availability of father's parental leave affects negatively on the second birth. Most of studies found the positive relation between fertility and WLB policies including parental leave, but the result of this paper was the opposite. It is

necessary to explain the pathways in which parental leave negatively affects childbirth through economic models.

Second, the results are not derived from the data of male workers actually using parental leave. If workers actually use parental leave, the outcome may vary depending on the benefits that can be gained. To estimate the relationship between policy and second birth, panel data is needed. But KLIPS was not possible to extract the workers using parental leave and analyze the data.

Lastly, the number of observation is relatively small as the period of data is limited to examine the effect of recent revision of the parental leave system. Since the average number of households giving birth to the first child is 70~90 per year, the limit of period for policy analysis results in small observation. It is expected that more accurate analysis of the current policy would be possible if more observations can be obtained after sufficient time passes.

As the government encourages male parental leave, rigorous research should be done. But only limited study is possible with currently available data. Therefore, solving the above mentioned limitation will be the directions for future study.

7. Appendix

<Table 1> Father's parental time with children (2013 or latest available year)

Country	Teaching, reading, play with child	Physical care, supervision	Total
Austria	36	45	81
USA	30	46	76
Spain	23	49	72
Australia	32	40	72
Ireland	33	32	65
Canada	22	42	64
Finland	21	35	56
Sweden	17	38	55
Italy	26	25	51
Denmark	18	31	49
Norway	12	36	48
OECD 20	19	28	47
United Kingdom	16	29	45
Poland	25	17	42
Germany	18	20	38
France	10	23	33
Slovenia	16	16	32
Belgium	9	19	28
Estonia	9	19	28
Japan	12	7	19
South Africa	1	6	7
Korea	3	3	6

Source: OECD (2015), How's life.

<Table 2> Maternity and parental leave entitlements in South Korea

	Maternity leave	Parental leave
Subject	Pregnant female worker or male worker whose wife giving birth	Workers parenting their child who is under 8 years of age or who is attending the second grade of elementary school
Duration	90 days (120 days for woman with more than 2 fetuses)	1 year
Amount (per month)	Max: KRW 1,500,00 (KRW 1,800,000 for woman with more than 2 fetuses) Min: Hourly minimum wage under Minimum Wage Act	Max: KRW 1,000,000 Min: KRW 500,000
Requirements	Worker has to be insured by employment insurance at least 180 days.	1. Worker has to be insured by employment insurance at least 180 days. 2. If insured worker's spouse is also an insured worker, the latter cannot be granted 30 or more days of parental leave for the same child at the same time.

Source: Author's summary based on Homepage of Ministry of Government Legislation, 『Easy to Find, Practical Law』

<Table 3> Descriptive Statistics

VARIABLES	With 1 child	With 2 child
Household income	42.17 (21.60)	40.72 (17.75)
Household net asset	122.33 (100.74)	112.81 (83.68)
Mother's age	32.81 (3.68)	31.56 (3.17)
Father's age	34.92 (3.95)	33.56 (3.60)
Mother's years of education	14.37 (2.23)	14.57 (2.03)
Father's years of education	14.35 (2.15)	14.83 (1.99)
Number of observations	79	139

* Statistics in parentheses is standard deviation.

* All the asset and income variable are prices adjusted based on 2010 and were measured in million KRW.

Source: author's computation from KLIPS (14-19 Waves).

<Table 4> Descriptive Statistics (WLB policy only)

VARIABLES		Number of observation
Provision of parental leave	Female	51
	Male	70
Available to use parental leave	Female	50
	Male	51
Provision of maternity leave	Female	51
	Male	87
Available to use maternity leave	Female	50
	Male	65
Labor force participation	Female	60
	Male	212

* Statistics indicate the number of observations.

Source: author's computation from KLIPS (14-16 Waves).

<Table 5> Estimation results

VARIABLES		(1)	(2)	(3)
Availability of maternity leave	mother		0.354 (0.720)	1.093 (0.924)
	father	0.480 (0.380)	0.488 (0.383)	0.594 (0.390)
Availability of parental leave	mother		-0.659 (0.719)	0.033 (0.773)
	father	-0.869** (0.442)	-0.862* (0.445)	-0.896** (0.454)
Household income		-0.003 (0.009)	0.000 (0.009)	-0.001 (0.010)
Household net asset		-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)
Sex of first child		0.014 (0.298)	0.032 (0.299)	0.092 (0.301)
Age of mother		-0.099* (0.058)	-0.097* (0.058)	-0.087 (0.059)
Age of father		-0.023 (0.061)	-0.025 (0.064)	-0.026 (0.065)
Mother's years of education		0.015 (0.089)	0.017 (0.090)	0.004 (0.091)
Father's years of education		0.166* (0.099)	0.160 (0.100)	0.180* (0.106)
Self-employed				0.268 (0.462)
Residence in capital area				-0.186 (0.315)
Labor force participation of Mother				-1.376* (0.746)
Constant		2.331 (2.031)	2.270 (2.066)	2.019 (2.123)
Number of observation			218	

* Robust standard errors in parentheses

* p<0.1 , **p<0.05, ***p<0.01

Sources: author's computation from KLPS (14~19 Waves).

<Table 6> Characteristics of male workers by availability of parental leave

VARIABLES	Available	Not available
Household income	53.01 (22.32)	37.99 (16.39)
Household net asset	120.55 (88.91)	114.27 (89.00)
Gender of first child (Proportion of boy)	54.04%	58.82%
Age	33.33 (3.27)	34.17 (3.90)
Years of education	15.76 (1.84)	14.35 (2.00)
Regular employee (Proportion of regular employee)	98.04%	76.40%
Earning income	41.86 (14.27)	31.24 (11.97)
Number of employees	230.17 (366.53)	1476.71 (4615.90)
Number of observations	51	161

* Statistics in parentheses is standard deviation.

* All the asset and income variable are prices adjusted based on 2010 and were measured in million KRW.

Source: author's computation from KLIPS (14-19 Waves).

<Table 7> Paid leave reserved for fathers

Country	Paternity leave (in weeks)	Father-specific parental and homecare leave (in weeks)	Average payment rate(%)
Korea	0.60	52.00	32.79
Japan	0.00	52.00	58.41
France	2.00	26.00	20.10
Luxembourg	0.40	26.00	39.34
Portugal	5.00	17.29	56.25
Belgium	2.00	17.33	25.73
Sweden	1.43	12.86	75.96
Iceland	0.00	13.00	59.67
Norway	0.00	10.00	97.90
Finland	3.00	6.00	62.87
Germany	0.00	8.70	65
Austria	0.00	8.67	80
Croatia	0.00	8.67	33.64
OECD average	1.03	7.14	-
Romania	1.00	4.33	-
Lithuania	4.00	0.00	100
Slovenia	2.86	0.00	90
Spain	2.14	0.00	100
Bulgaria	2.14	0.00	78.39
Australia	2.00	0.00	42.29
Denmark	2.00	0.00	53.55
Estonia	2.00	0.00	100
Poland	2.00	0.00	100
United Kingdom	2.00	0.00	20.15
Latvia	1.43	0.00	80
Chile	1.00	0.00	100
Hungary	1.00	0.00	100
Mexico	1.00	0.00	100
Turkey	1.00	0.00	100
Greece	0.40	0.00	100
Italy	0.40	0.00	100
Netherlands	0.40	0.00	100
Malta	0.20	0.00	100

Source: OECD (2015), How's life.

<Table 8> Users of paid parental leave (2013)

Country	Male share of recipients	Number of users/recipients per 100 live births	
		Women	Men
Iceland	45.62	160.10	134.30
Sweden	44.96	366.64	299.53
Portugal	43.01	107.31	80.99
Norway	40.79	145.23	100.06
Luxembourg	25.73	49.52	17.15
Belgium	25.65	69.50	23.98
Germany	24.87	96.33	31.89
Denmark	24.05	140.07	44.35
Finland	18.70	142.58	32.79
Canada	13.60	42.66	6.72
Italy	11.84	48.61	6.53
Estonia	6.54	214.94	15.05
Korea	4.45	16.82	0.78
Austria	4.26	157.91	7.03
France	3.50	61.86	2.24
Czech Republic	1.79	269.37	4.92
Poland	1.65	84.04	1.41
Australia	0.48	54.16	0.26

Note: Data for Australia refer to 2012-13, for Belgium to 2012, for France to 2011, and for Korea and Poland to 2014

Source: OECD (2015), How's life.

<Table 9> Male parental leave users in government ministry

	User ratio			Average
	2013	2014	2015	
Ministry of Gender Equality and Family	6.06	9.38	10.3	8.58
Ministry of Strategy and Finance	4.94	3.4	3.63	3.99
Ministry of Education	3.14	2.65	5.53	3.77
Ministry of Justice	2.74	2.72	3.43	2.96
Ministry of Health and Welfare	0.76	3.68	3.66	2.70
Ministry of Trade, Industry and Energy	2.53	2.85	2.2	2.53
Ministry of Land, Infrastructure and Transport	1.68	1.92	2.47	2.02
Ministry of National Defense	0.6	2.4	2.96	1.99
Ministry of Foreign Affairs	1.58	1.39	2.76	1.91
Ministry of Employment and Labor	1.26	1.53	2.57	1.79
Ministry of Unification	0	2.65	2.63	1.76
Ministry of Agriculture Food and Rural Affairs	1.5	0.92	2.62	1.68
Ministry of Culture, Sports and Tourism	2.87	1.03	0.26	1.39
Ministry of Environment	1.24	1.58	1.34	1.39
Ministry of Science and ICT	1.23	1.29	1.4	1.31
Ministry of Oceans and Fisheries	0.46	0.51	1.67	0.88

Source: Press release from Jongpil Yoon parliamentary office.

8. References

- Adsera, Alicia (2004) "Changing Fertility in Developed Countries. The Impact of Labor Market Institutions", *Journal of Population Economics*, 17(1), 1-27.
- Andersson, B., U. Kihlblom and K. Sandqvist (1993), "Rising Birth Rate in Sweden: A Consequence of the Welfare State and Family Policy?", *Childhood*, 1(1), 11-25.
- Averett, S. and L. Whittington (2001), "Does Maternity Leave Induce Births?", *Southern Economic Journal*, 68(2), 403-417.
- Bratti, M. and K. Tatsiramos (2012), "The Effect of Delaying Motherhood on the Second Childbirth in Europe", *Journal of Population Economics*, 25(1), 291-321.
- Cheon, H. J. (2005), "The Characteristics of Couples by Their Desires for a Second Child", *Journal of Korean Management Association*, 23(3), 25-33.
- Chung, H. E. and M. J. Chin (2008), "The Intention of Having a Second Child by the Employment Status of Married Women", *Korea Journal of Population Studies*, 31(1), 151-168.
- Chung, S. H. (2012), "A Study of the Effectiveness of Policies in Response to Low Fertility", *Korea Journal of Population Studies*, 35(1), 31-52.
- Duvander, A.-Z. and G. Andersson (2005), "Gender Equity and Fertility in Sweden: A Study on the Impact of the Father's Uptake of Parental Leave on Continued Childbearing", MPIDR Working Paper WP-2005-013, 23 pages (April 2005). Rostock, Max Planck Institute for Demographic Research.
- Duvander, A.-Z., T. Lappegård and G. Andersson (2010), "Family Policy and Fertility, Father's and Mother's Use of Parental Leave and Continued Childbearing in Norway and Sweden", *Journal of European Social Policy*, 20(1), 45-57.
- Fox, J. F., S. Klüsener and M. Myrskylä (2015), "Is a Positive Relationship between Fertility and Economic Development Emerging at the Sub-National Regional Level? Theoretical Considerations and Evidence from Europe", MPIDR Working Paper WP-2015-006, 44 pages (November 2015). Rostock, Max Planck Institute for Demographic Research.
- Han, Y. S. and Y. S. Lee (2015), "The Effect of Women's Labour Force Participation and Work-Family

- Reconciliation Support on Fertility”, *Family and Environment Research*, 53(1), 49-66.
- Hobson, B., S. Fahlén and J. Takács (2011), “Agency and Capability to Achieve a Work-Life Balance: A Comparison of Sweden and Hungary”, *Social Politics*, 18(2), 168-198.
- Hoem, J. (1990), “Social Policy and Recent Fertility Change in Sweden”, *Population and Development Review*, 16(4), 735-748
- Hoem, J. (2005), “Why Does Sweden Have such High Fertility?”, *Demographic Research*, 13, 559-572.
- Jang, H. N. and M. S. Lee (2013), “A Study on the Determinants of Married-Working Women’s Childbirth Intention”, *Family and Environment Research*, 51(4), 425-438.
- Joo, H. J., K. H. Kwak and J. Y. Cho (2010), “The Effect of Socioeconomic Factors and Policy Factors on Fertility Intention”, *Korean Public Management Review*, 24(4), 211-228.
- Korea Population and Health Welfare Association (2018), “Survey on the Use and Need of Parental Leave”, Seoul: Korea Population and Health Welfare Association.
- Kim, I. O., H. J. Wang, G. C. Jeong and S. Y. Choi (2011), “The Effect of Policy on Childbirth Encouragement and Working Time on Secondary Childbirth Intention of Married Women”, *Korea Journal of Population Studies*, 34(3), 139-155.
- Kim, J. W. and J. Kwon (2015), “A Qualitative Study on the Experience of Fathers Using Parental Leave”, *Korean Association of Social Policy*, 22(3), 265-302.
- Lee, H. O (2011), “Analyzing Determinants of Korean Women’s Birth Behavior”, *Journal of Policy Development*, 11(1), 99-132.
- Luci-Greulich, A. and O. Thévenon (2013) “The impact of family policies on fertility trends in developed countries”, *European Journal of Population*, 29(4), 387-416.
- Luci-Greulich, A. and O. Thévenon (2014), “Does economic advancement ‘cause’ a re-increase in fertility? An empirical analysis for OECD countries (1960-2007)”, *European Journal of Population*, 30(2), 187-221.
- Ma, Li. (2014), “Labor Force Participation, Family Policy Change, and Second Birth Rates in South Korea”, Stockholm University Linnaeus Center on Social Policy and Family Dynamics in Europe, SPaDE Working paper 2014:5.
- Matysiak, A. and I. Szalma (2014), “Effects of Parental Leave Policies on Second Birth Risks and Women's Employment Entry”, *Population*, 69(4), 599-636.

- Ministry of Health and Welfare (2009), “National marriage and childbirth trend”, Sejong-si: Ministry of Health and Welfare.
- Myrskylä M., H.-P. Kohler and F. C. Billari (2009), “Advancement in Development Reverse Fertility Declines”, *Nature*, 460, 741-743.
- OECD (2015), “How’s Life? 2015: Measuring Well-being”, OECD publishing, paris.
- Press release from Jongpil Yoon parliamentary office (2017), “Government ministries, male parental leave use rate ‘Failed!’”.
- Risse, L. (2006), “Does Maternity Leave Encourage Higher Birth Rates? An Analysis of the Australian Labour Force”, *Australian Journal of Labour Economics*, 9(4), 343-370.
- Wong, C.-K., K.-L. Tang and S. Ye (2010), “The Perceived Importance of Family-Friendly Policies to Childbirth Decision Among Hong-Kong Women”, *International Journal of Social Welfare*, 20(4), 381-392.
- Yoo, G. S. (2009), “The Effects of Fertility Policies on Childbirth by Birth Order”, *Journal of Korean Management Association*, 27(2), 191-201.
- Yoo, G. S. (2010), “The Effects of Family-Friendly Corporate Policies on Employees’ Childbirths”, *Journal of Korean Management Association*, 28(2), 89-96.