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Determinants on the Number of Children among Married Women in Korea

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Abstract

This study aims to examine what factors affect married women's childbirth behavior and what causes the gap between their planned and actual number of children by adopting the 'extended theory of planned behavior' model. To this end, the main factors used in the model were attitude to childbirth, subjective norms, perceived behavioral control, perceptions on fairness in housework, and sociodemographic characteristics of the subjects. A secondary data analysis was conducted using data extracted from the '2015 National Survey on Fertility and Family Health and Welfare', which was limited to 8,535 married Korean women who responded to items related to their planned number of children. SPSS 24.0 was used to process the data for a multivariate logistic regression analysis as well as a descriptive analysis. Findings showed that married women are likely to give birth to less than their planned number of children when they are young, lack home ownership, have a low monthly average household income, have a progressive attitude to childbirth during cohabitation, and intend to use the work-family reconciliation policy as it applies to them and their spouse. Results also show that married women are likely to give birth to more than their planned number of children when they have a low education level, a low traditional sense of obligation for children, perceive workplace support for childbirth and child care as unnecessary, perceive tax-funded state support for families with multiple children as necessary, and don't intend to use the work-family reconciliation policy as it applies to their spouse.

Keywords

Fertility; married women; number of children; Theory of Planned Behavior

Introduction

South Korea has been a lowest-low fertility society for 17 years, and such a prolonged low fertility rate has been attributed to various social changes, including increased economic participation of women, universalization of nuclear families and single households, changes in values concerning marriage and childbirth, and increased child-rearing expenses due to social and economic instability (Lee & Hwang, 2017). The total fertility rate (TFR) of Korea dropped from 5.6 in 1965 to 2.8 in 1980, nearing the population replacement level. Since then, it reduced to 1.5 in 2000 and has remained at around 1.2 since 2005. Because of the continuous low fertility trend in Korea, the population is expected to decline in 2030. With the TFR in 2017 showing a record low of 1.05, many are concerned that Korea is headed for a demographic cliff

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within a couple of years (Statistic Korea, 2017). According to Statistics Korea, it is expected that the working age population will decrease by more than 300,000 every year from 2020 and that a natural decrease in the population will take place from 2029, which will eventually lead to the extinction of the Korean people by 2750.

In response to this serious low-fertility situation combined with Korea's ageing society, the Korean government introduced the 'Childbirth Encouragement Policies' in 2005 and established the 'Basic Planning for Low Fertility and Aging Society' policy in 2006. Implemented in phases every five years, the 'Basic Planning for Low Fertility and Aging Society' policy has been in its third phase (Saeromaji Plan, 2020) since 2017. Despite these countermeasures, however, the fertility rate has continued to fall, indicating the limitations of these policies.

To understand the reasons for the declining fertility rate in Korean society, it is necessary to examine Koreans' childbirth plans and their realization (Im & Hwang, 2018). Childbirth expectation or planning refers to ideas concerning having children, and childbirth realization is the outcome from actions taken to realize these ideas. It is likely that individual expectations and plans for childbirth will influence actual childbirth. If a society is found to show no difference between the planned (expected) number of children (PNC) and the actual number of children (ANC), the fertility rate is unlikely to increase in that society. However, if a large difference is found between the PNC and the ANC, an increase in the fertility rate is possible when the factors needed for the realization of individuals' PNC are satisfied.

Therefore, it is necessary to determine what factors influence childbirth plans in the context of the current low-fertility situation. Different circumstances may develop after couples make plans for childbirth at the time of marriage. Some may not be able to realize their plans while others may realize childbirth(s) exceeding their PNC. Accordingly, this study aims to determine the factors that directly influence childbirth by comparing the PNC and the ANC of married women. To be more specific, this study investigates how the gap between the PNC and ANC is affected by factors such as attitude, subjective norms, and perceived behavioral control in relation to childbirth. This study also investigates how childbirth is influenced by women's perceived fairness regarding the treatment of childbirth within the family and by the government.

Extended Theory of Planned Behavior (ETPB)

Based on the Theory of Reasoned Action (TRA), the Extended Theory of Planned Behavior (ETPB) incorporates a third variable into the Theory of Planned Behavior (TPB) proposed by Ajzen and Fishbein (1980). The TPB is based on a socio-psychological approach to attitude and behavior. It assumes that a person's socio-cultural behaviors and behavioral intentions can be predicted through three variables; attitude toward behavior, subjective norms, and perceived behavioral control.

First, attitude or attitude toward a behavior refers to the positive or negative evaluation an individual has of a certain behavior. Attitudes are made up of subjective and emotional perceptions reflected in behavioral consequences. A fertility-intentions study by Lars, Jane and Trude (2011) showed that attitude variables include sexual life, quality of life, closeness between partners, potential care and security in old age, and contact between parents.

Second, subjective norms refer to a person's perception of pressure imposed on his/her behavior by people of importance. Subjective norms are divided into injunctive and descriptive normative beliefs. Injunctive normative beliefs are formed when a person is told

what he/she should do by people of importance (or when the person infers that he/she is being so told), whereas descriptive normative beliefs are usually based on the observed or inferred actions of those social referents (Ajzen & Klobas, 2013). Some fertility research draws on descriptive norms, such as the number of siblings in the decision maker's family (Axinn, Clarkberg & Thornton, 1994) or the number of children among the decision maker's closest friends (East, Felice & Morgan 1993). Lee, Park and Kim (2011) use government support as a subjective-norms variable.

Third, perceived behavioral control refers to an individual's personal beliefs about how he/she can successfully accomplish a certain behavior. This factor reflects the person's past experiences and predictions for future impediments in performing a certain behavior. It is reported that a person's intention to perform a certain behavior is intensified when the person's attitude concerning subjective norms about the behavior is more positive and his/her level of perceived behavioral control is higher (Ajzen, 1991).

With the increased application of the TPB in a wide range of research, it has been pointed out that the theory is limited because there are aspects unexplained by subjective norms and perceived behavior control variables. Researchers who have used the TPB state that the low explanatory power of subjective norms can be attributed to a problem with the scale measuring the subjective norms and to the fact that subjective norms are not clearly established (Armitage & Conner, 2001; Sheppard et al., 1988; Van den Putte, 1991). It has also been pointed out that the items measuring perceived behavioral control lack internal consistency (Ajzen, 2002; Armitage & Conner, 2001). In response to these problems and to raise the explanatory power of the TPB, researchers started to apply the Extended Theory of Planned Behavior (ETPB), which has additional predictive variables that can explain dependent variables other than existing ones (Lee, 2013; Lee & Park, 2008; Lam & Hsu, 2006). Ajzen (1991) also approved the introduction of new variables or modification of the research path to strengthen the explanatory power of behavioral variables or intentions. Thus, various attempts have been made in studies adopting the TPB to improve the explanatory power of the theory by subdividing the perceived behavior control, attitude, and subjective normative variables, and adding additional variables.

The new variables typically added to the basic variables of the TPB include past behaviors or habits, experience, prior knowledge and intention to act (Kim, Kim & Kim, 2017; Lee, Oh, Jin, Ahn & Kim, 2016; Bae, Won & Cho, 2015; Cho, 2014; Yoon, Lee, Park & Kim, 2011; Song & Lee, 2010; Wong, Kothe & Mullan, 2012; Quintal, Lee & Soutar, 2010; Forward, 2009; Lam & Hsu, 2006). Habit refers to repeated actions taken in the past, while intention to act, which is the decision to specifically carry out an action, refers to an action formed according to circumstances that arise in the future (Lee, 2016).

A person's actions are manifested by a combination of various factors such as personal habits, environment, and social pressure. Likewise, the act of childbirth is determined by interactions between a woman's social environment, personal abilities, and perceptions. Therefore, it is necessary to identify various factors to properly predict childbirth. The ETPB was designed to concurrently identify individual psychological factors and social or group factors to understand people's behavior. Accordingly, applying the ETPB can be useful in understanding and predicting childbirth behavior.

Literature Review

A literature review was conducted to examine what factors are considered relevant to childbirth intention or the PNC, childbirth behavior or the ANC, the gap between the PNC and the ANC and how the TPB is applied to explain childbirth behavior. In the context of childbirth, 'plan' refers to what has been considered and intended in advance for childbirth. It is analogous to 'expected', that is, the ideal set in one's mind regarding the number of children to have. 'Realization' refers to the outcome of the plan in terms of actual behaviors. Accordingly, related terms were taken into consideration in reviewing previous studies.

Factors influencing the intention of married women in Korea to give birth vary widely due to diverse personal, psychological and family situations. In previous studies, the intention of women to give birth was examined in terms of personal factors such as age, income, job (Kim, 2009) and education level; psychological factors such as marital satisfaction (Lee, 2012) and life satisfaction (Parr, 2010); and family factors including degree of housework sharing (Terry & Hogg, 1996) and awareness of support for childbirth and child support (Lee, 2009).

Previous studies indicate that subjective perception has the greatest effect on the gap between the PNC and the ANC and that income has a negative effect on the gap. In other words, the factor influencing childbirth the most is one's subjective attitude or perception of childbirth and not one's judgment on the objective number of children. Bae and Kim (2012) conducted a study of family values and birth policy on the desired fertility rate**.** According to the study results, the factors that influence actual number of childbirths matching the desired number of childbirths are subjective standard of living, preference for sons, sense of filial duty, and experience of benefiting from the childbirth policy. Min (2013) analyzed the gap between the PNC and the ANC in relation to explanatory variables such as household income, monthly expense for childcare, parents' age, and educational level. Analysis of the results showed that the mother's current age and marriage age are the only factors that influence the gap between the PNC and the ANC. Hyeon (2006) and Lee (2014) investigated the effect women's economic activity has on the gap between expected and actual childbirths. The study results showed that the lower the women's subjective stratum consciousness and the lower their monthly income, the greater they are restricted in having children.

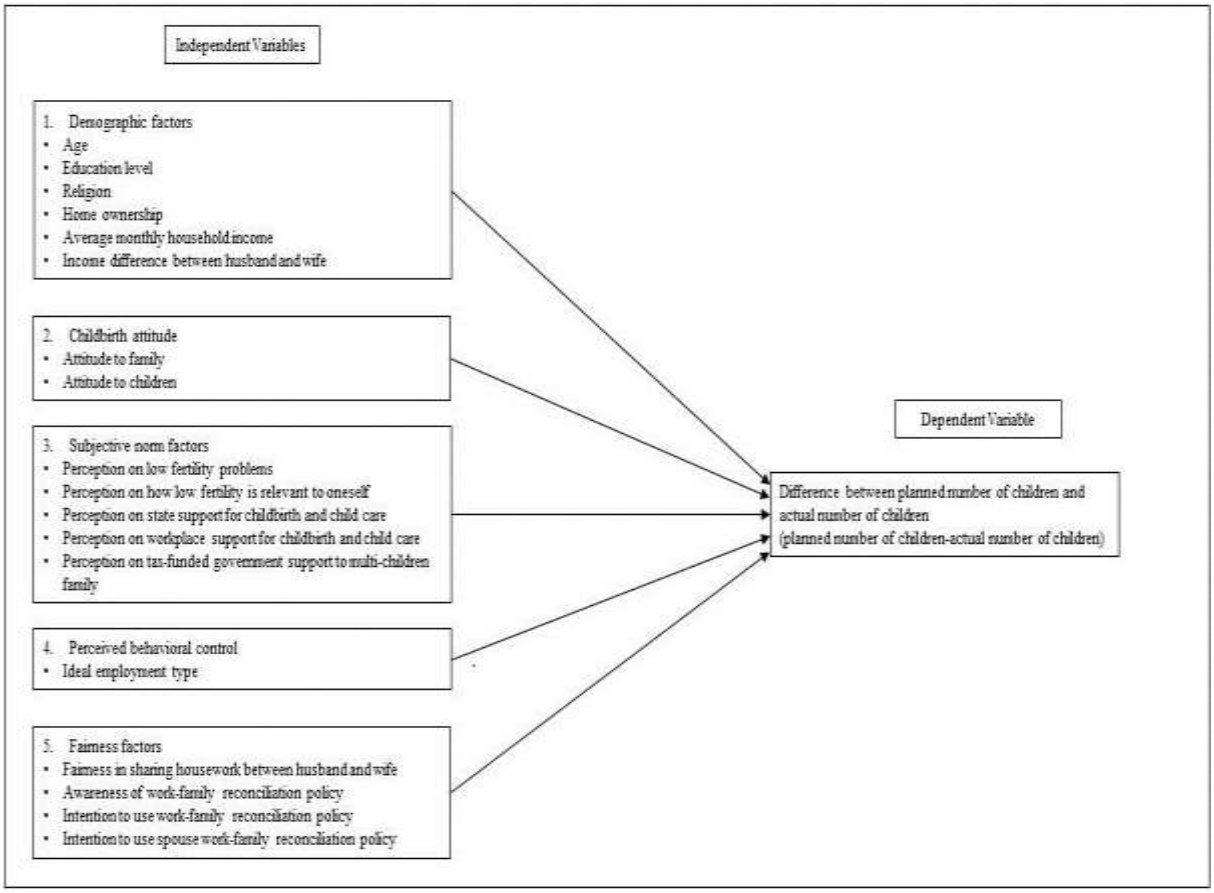
The TPB has been applied in various disciplines at home such as advertisement and public relations (Han, 2001), tourism (Yoon, 2010), psychology (Kim, 2017; Lee, 2016; Bae, 2014) and business and economics (Kim, 2017; Jin, 2016) to predict people's behaviors in respective fields. According to previous studies that apply the TPB to explain childbirth behavior, attitude toward childbirth was found to have the greatest influence on childbirth intention while subjective norms were found to have the least influence. Therefore, the findings suggest that a person's childbirth behavior is most influenced by one's own attitude toward childbirth, and that the society to which the person belongs may have some influence on childbirth behavior, but not at a significant level. Applying the TPB, Byun (2015) conducted a survey with 1,435 married women to determine which factors influence their childbirth behaviors. According to the results of the analysis (which employed a structural equation model), childbirth intention is influenced by satisfaction, subjective norms, and material and individual control factors. Factors that have a positive effect on childbirth intention were found to be high satisfaction, the subjective norm of preference for a multi-child family, and individual control factors such as the subject's own health condition and the state of the spouse's work life. On the contrary, material control was found to have a negative effect on childbirth intention for subjects who consider that their financial status, work life and residential environment are very important when a child is born. Han and Jung (2009) applied TPB to study the childbirth intentions of

nurses between the ages of 20 and 39. In this study, it was found that childbirth intention is most significantly influenced by attitude, followed by perceived behavioral control and subjective norms. Shift work status was also found to have a significant effect on childbirth intention. Lee, Park and Kim (2011) conducted a study with unmarried undergraduate and graduate students in their 20s to analyze the factors affecting their birth intentions, focusing on the amount of TV viewing by genre and the extended TPB variables. Analysis of the results showed that the amount of time viewing discussion programs indicated a positive effect, while the amount of time viewing health programs showed a negative effect on the intention of having multiple children. As for the three variables of TPB, results showed that subjects' childbirth intention increases with a stronger positive attitude concerning childbirth and having multiple children as well as the feasibility of having multiple children. The group norms added to the TPB variables showed a positive effect, whereas the moral norms indicated a negative association with childbirth intention.

Research Method

This study consists of a secondary data analysis using data extracted from the '2015 National Survey on Fertility and Family Health and Welfare' conducted by the Korea Institute for Health and Social Affairs (KIHASA). Out of 11,009 subjects in the original survey, this study selected 8,535 subjects who satisfied the following criteria: 1) a woman with a spouse, 2) a woman of Korean nationality, and 3) a woman who responded to items concerning the PNC. SPSS 24.0 was used to process the data and conduct a multivariate logistic regression analysis. The research model is shown in Figure 1.

Figure 1: Research model



The dependent variables were difference between planned number of children and actual number of children. Questions were respectively worded as "How many children did you plan to have at the time of marriage?" and "How many children did you give birth to so far?". In order to measure whether the PNC at the time of marriage was reflected by the actual number of children born, the difference between the responses to respective questions was calculated. The value of the PNC was subtracted from the value of the ANC and if the result was greater than 0, the subject was categorized as 'childbirth(s) over PNC'. If the result was less than 0, the subject was categorized as 'childbirth(s) less than PNC'. Subjects yielding a value of 0 after this calculation were categorized as 'childbirth(s) identical to PNC'.

The independent variables were grouped into the following categories: sociodemographic factors, childbirth attitude, subjective norms, perceived behavioral control, and fairness factors. The sub-variables included in the sociodemographic factors were age, education level, religion, homeownership, average monthly household income, and income difference between husband and wife.

In the ETPB model, two sub-variables were used for the childbirth attitude factor; 'attitude to family' (7 sub-questions) and 'attitude to children' (6 sub-questions). These items were measured on a four-point scale of agreement. For the subjective norm factor, the subjects' perception on childbirth issues was measured on a four-point scale made up of the following factors: 'perceptions of low fertility problem', 'how lower fertility is relevant to oneself', 'state support for childbirth and childcare', 'workplace support for childbirth and childcare', and 'tax-funded government support for multi-children family'. The subjects' perceived behavioral control was measured in terms of perceived ideal employment type. As for the fairness factors, the measured variables were 'fairness in sharing housework between the subject and the spouse', 'awareness of work-family reconciliation policy', 'intention to use work-family reconciliation policy applying to oneself', and 'intention to use work-family reconciliation policy applying to husband'. The variables measured in this study are summarized in Table 1.

Table 1: Research variables

Variables	Explanation
Division: Dependent variable	
Difference between planned number of children and current number of children	1.Planned > Current 2.Planned = Current 3.Planned < Current
Division: Independent variable	
Socio-demographic factors	
Age	17~49
Education level	0.Less than university 1.University or higher
Religion	0.No 1.Yes
Homeownership	0.No 1.Yes
Average monthly household income	No income ~ $11,596 (USD)
Income difference between husband and wife	Wife income > husband income Wife income = husband income Wife income < husband income
Childbirth attitude: Attitudes to family	1.Totally agree

Variables	Explanation
Cohabitation and childbirth Divorce Childbirth attitude: Attitudes to children Psychological satisfaction about children Traditional obligation for children	2.Mostly agree 3.Don't agree 4.Don't agree at all
Subjective norm factors	
Perception of low fertility problems	1.Very serious 2.Somewhat serious 3.Not serious 4.Not serious at all
Perception of how low fertility is relevant to oneself	1.Totally relevant 2.Mostly relevant 3.Not relevant\ 4.Not relevant at all
Perception of state support for childbirth and childcare Perception of workplace support for childbirth and childcare	1.Totally need support 2.Somewhat need support 3.Don't need support 4.Don't need support at all
Perception of tax-funded government support for multi-children family	1.Totally agree 2.Mostly agree 3.Rarely agree 4.Don't agree at all
Perceived behavior control	
Ideal employment type	1.Full time 2.Part time 3.No Job
Fairness factors	
Fairness in sharing housework between husband and wife	1.Totally fair 2.Mostly fair 3.Unfair 4.Very unfair
Intention to use work-family reconciliation policy Intention to use spouse work-family reconciliation policy	0.No 1.Yes
Fairness factor: awareness of work-family reconciliation policy	
Leave system Work support system	0.Not aware 1.Aware

Results

Characteristics of the subjects

As shown in Table 2, the average number of planned children was 2.02, while the average number of actual children was 1.75. Examining the difference between the PNC and the ANC, it was found 32.9% (N=2,812) were in the 'group with childbirth(s) over PNC', while 16.9% (N=1,442) were in the 'group with childbirth(s) less than PNC'. 50.2% of the women experienced childbirth(s) identical to the PNC.

Table 2: Characteristics of subject

Variable	Division	Frequency	Ratio (%)	Mean (Median)	Total
Dependent variable					
Planned number of children	0	51	0.6	2.02 (2.0)	8,535 (100%)
	1	1,466	17.2		
	2	5,630	66.0		
	3	1,071	12.6		
	4 or more	317	3.7		
Actual number of children	0	655	7.7	1.75 (2.0)	8,535 (100%)
	1	2,015	23.6		
	2	4,760	55.8		
	3	1,021	12.0		
	4 or more	84	0.9		
Planned number of children - Actual number of children	Planned > Actual	2,812	32.9	1.84 (2.0)	8,535 (100%)
	Planned = Actual	4,281	50.2		
	Planned < Actual	1,442	16.9		

The sociodemographic characteristics of the subjects are shown in Table 3. The age distribution of the subjects ranged from 17 to 49, and the average age was 38.72. In terms of education, 59.1% (N=5,047) received less than a college education, while 40.9% (N=3,488) received a college level or higher education. In terms of home ownership, most of the subjects (N=5,488, 64.3%) were living in their own house at the time of the study, while 35.7% (N=3,049) were living in a house on a long-term or monthly rental lease. More than half of the subjects (N=4,577, 53.6%) did not have any religion, while 46.4% (N=3,958) did have a religion. The monthly average household income of the subjects was $4,433 and the median income was $4,014. It was also found that very few women had a higher income than their husbands with only 4.9% of the subjects (N=417) in this category and 4.1% (N=353) having the same income as their husbands. Most of the married women (91%) had a lower income than their husbands.

Table 3: Frequency analysis results of socio-demographic factors

N=8,535 (Unit: person (%))

Socio-demographic	Planned number of children - Actual number of children			Total
	Planned > Actual	Planned = Actual	Planned < Actual	
Age				
Under 29	451(74.5)	133(22.0)	21(3.5)	605(100.0)
30~34	902(53.5)	618(36.8)	158(9.4)	17,678(100.0)
35~39	661(29.5)	1,161(51.7)	422(18.8)	2,244(100.0)
40~44	484(21.7)	1,260(56.6)	483(21.7)	2,227(100.0)
45~49	314(17.6)	1,109(62.3)	358(20.1)	1,781(100.0)
Education level				
Less than university	1,535(30.4)	2,571(50.9)	941(18.7)	5,047(100.0)
University or higher	1,277(36.6)	1,710(49.0)	501(14.4)	3,488(100.0)
Religion				
No	1,554(34.0)	2,294(50.1)	729(15.9)	4,577(100.0)
Yes	1,258(31.8)	1,987(50.2)	713(18.0)	3,958(100.0)

Socio-demographic	Planned number of children - Actual number of children			Total
	Planned > Actual	Planned = Actual	Planned < Actual	
Homeownership				
No	1,548(28.2)	2,969(54.1)	969(17.7)	5,486(100.0)
Yes	1,294(42.3)	1,312(43.2)	443(14.5)	3,049(100.0)
Average monthly household income (USD)				
Income ≤ $2,672	688(43.3)	649(40.8)	252(15.9)	1,589(100.0)
$2,672 < Income≤ $4,454	1,255(33.5)	1,876(50.1)	613(16.4)	3,744(100.0)
$4,454 <Income ≤ $6,236	587(29.0)	1,073(53.0)	365(18.0)	2,025(100.0)
Over $6,236	282(24.0)	683(58.0)	212(18.0)	1,177(100.0)
Income difference between husband and wife				
Wife income > husband income	168(40.3)	178(42.7)	71(17.0)	417(100.0)
Wife income = husband income	133(37.7)	165(46.7)	55(15.6)	353(100.0)
Wife income < husband income	2,511(32.3)	3,938(50.7)	1,316(17.0)	7,765(100.0)

The characteristics of the subjects in terms of factors of the extended TPB model are shown in Table 4 and Table 5. Examining the subjects' attitude to childbirth, 34% (N=2,905) supported cohabitation and childbirth while 66% (N=5,630) did not suggesting that married women tend to hold a conservative attitude toward childbirth outside legal marriage. Results concerning attitude towards divorce showed that 64.6% (N=5,519) supported divorce while 35.3% (N=3,016) did not. Thus, in contrast to the conservative attitude toward childbirth during cohabitation, more than half of the subjects showed a progressive attitude toward divorce. In terms of attitude to children, 96.9% of the subjects (N=8,267) either totally or mostly agreed to having positive attitudes towards psychological satisfaction about children. As for traditional obligation for children, 57.2% (N=4,883) showed disagreement, while 32.3% (N=2,750) expressed general agreement.

As for subjective norms, 89% (N=7,646) perceived that low fertility problems are serious. Also, 64.3% (N=5,548) responded that the low fertility rate phenomenon was relevant to them, while 35.7% (N=2,987) responded otherwise. In response to items regarding support for childbirth and child care, 97% (N=8,288) responded that state support for childbirth and childcare is necessary and 93% (N=8,409) responded that workplace support for childbirth and childcare is necessary. Thus, it was found that most of the married women believed that both the state and the workplace should support childbirth and childcare. In addition, it was found that most married women were in favor of tax-funded state support for families with multiple children (83.2%, N=7,105) and only 16.9% (N=1,430) disapproved of such support.

The characteristics of the subjects in terms of perceived behavioral control and fairness were as follows: First, according to the responses to the ideal type of employment, working part-time was perceived to be most ideal (N=4,670, 54.7%). Second, in relation to fairness factors, 49.1% (N=4,195) responded that sharing housework with a spouse is fair while 50.9% (N=4,340) responded that it is not fair. Also, most of the subjects were aware of the leave system (98.6%, N=8,419) and the work support system (91.9%, N=7,846). Meanwhile, 21.4% (N=1,829) responded that they intended to use the work-family balance policy as it applied to them, while 78.6% (N=6,706) responded that they had no intention of using the policy. In response to the work-family balance policy as it applied to a spouse, 18.3% (N=1,564) expressed the intention to make use of the policy in this way, while the majority (81.7%, N=6,971) did not.

Table 4: Frequency analysis results of factors in the extended TPB model 1

N=8,535 (Unit: person (%))

Factors	Planned number of children -Actual number of children			Total
	Planned > Actual	Planned = Actual	Planned < Actual	
Attitude to childbirth				
Cohabitation and childbirth				
Totally agree	98(49.5)	73(38.0)	24(12.5)	192(100.0)
Mostly agree	1,037(38.2)	1,262(46.5)	414(15.3)	2,713(100.0)
Don't agree	1,453(30.3)	2,498(52.0)	850(17.7)	4,801(100.0)
Don't agree at all	227(27.4)	448(54.0)	154(18.6)	829(100.0)
Divorce				
Totally agree	172(33.9)	240(47.3)	95(18.7)	507(100.0)
Mostly agree	1,659(33.1)	2,518(50.2)	835(16.7)	5,012(100.0)
Don't agree	898(32.2)	1,407(50.4)	485(17.4)	2,790(100.0)
Don't agree at all	83(36.7)	116(51.3)	27(11.9)	226(100.0)
Psychological satisfaction				
Totally agree	1,359(33.7)	2,024(50.2)	647(16.1)	4,030(100.0)
Mostly agree	1,356(32.0)	2,126(50.2)	755(17.8)	4,237(100.0)
Don't agree	96(36.4)	129(48.9)	39(14.8)	264(100.0)
Don't agree at all	1(25.0)	2(50.0)	1(25.0)	4(100.0)
Traditional Obligation				
Totally agree	77(33.8)	115(50.4)	36(15.8)	228(100.0)
Mostly agree	822(32.6)	1,296(51.4)	404(16.0)	2,522(100.0)
Don't agree	1,595(32.7)	2,456(50.3)	828(17.0)	4,879(100.0)
Don't agree at all	318(35.1)	414(45.7)	174(19.2)	906(100.0)
Subjective norm factors				
Perception of low fertility problems				
Very serious	1,133(32.4)	1,730(49.5)	629(18.0)	3,492(100.0)
Somewhat serious	1,367(32.9)	2,136(51.4)	651(15.7)	4,154(100.0)
Not serious	297(34.7)	400(46.7)	160(18.7)	857(100.0)
Not serious at all	15(46.9)	15(46.9)	2(6.3)	32(100.0)
Perception of how low fertility is relevant to oneself				
Totally relevant	447(29.2)	785(51.3)	298(19.5)	1,530(100.0)
Mostly relevant	1,335(33.2)	2,032(50.6)	651(16.2)	4,018(100.0)
Not relevant	918(34.3)	1,326(49.6)	430(16.1)	2,674(100.0)
Not relevant at all	112(35.8)	138(44.1)	63(20.1)	313(100.0)
Perception of state support for childbirth and childcare				
Totally need support	779(34.9)	948(42.5)	503(22.6)	2,330(100.0)
Somewhat need support	1,609(33.0)	2,530(51.9)	736(15.1)	4,875(100.0)
Don't need support	372(29.5)	706(56.0)	183(14.5)	1,261(100.0)
Don't need support at all	52(30.8)	97(57.4)	20(11.8)	169(100.0)
Perception of workplace support for childbirth and childcare				
Totally need support	1,168(37.7)	1,417(45.7)	517(16.7)	3,102(100.0)
Somewhat need support	1,589(30.6)	2,724(52.5)	873(16.8)	5,186(100.0)
Don't need support	48(22.4)	119(55.6)	47(22.0)	214(100.0)
Don't need support at all	7(21.2)	21(63.6)	5(15.2)	33(100.0)
Perception of tax-funded government support for multi-children family				
Totally agree	1,088(35.1)	1,508(48.6)	506(16.3)	3,102(100.0)
Mostly agree	1,688(31.8)	2,709(51.0)	910(17.1)	5,307(100.0)
Don't agree	30(26.5)	59(52.2)	24(21.2)	113(100.0)
Don't agree at all	6(46.2)	5(38.5)	2)(15.4)	13(100.0)

Table 5: Frequency analysis results of factors in the extended TPB model 2

N=8,535 (Unit: person (%))

Factors	Planned number of children - Actual number of children			Total
	Planned > Actual	Planned = Actual	Planned < Actual	
Perceived behavior control				
Ideal employment type				
Full time	995(33.0)	1,509(50.1)	507(16.8)	3,011(100.0)
Part time	1,563(33.5)	2,337(50.0)	770(16.5)	4,670(100.0)
No Job	254(29.7)	435(50.9)	165(19.3)	854(100.0)
Fairness factors				
Fairness in housework				
Totally fair	289(44.4)	262(40.2)	100(15.4)	651(100.0)
Mostly fair	1,289(36.4)	1,718(48.5)	537(15.2)	3,544(100.0)
Unfair	935(29.3)	1,692(53.1)	561(17.6)	3,188(100.0)
Very unfair	299(26.0)	609(52.9)	244(21.2)	1,152(100.0)
Leave system				
Aware	2,775(31.9)	4,227(46.6)	1,417(16.8)	8,419(100.0)
Not aware	37(31.9)	54(46.6)	25(21.6)	116(100.0)
Work support system				
Aware	2,582(32.9)	3,946(50.3)	1,318(16.8)	7,846(100.0)
Not aware	230(33.4)	335(48.6)	124(18.0)	689(100.0)
Intention to use work-family reconciliation policy				
Yes	1,549(69.1)	457(25.0)	109(6.0)	1,829(100.0)
No	1,549(23.1)	3,824(57.0)	1,33(19.9)	6,706(100.0)
Intention to use spouse work-family reconciliation policy				
Yes	1,177(75.3)	323(20.7)	64(4.1)	1,564(100.0)
No	1,635(23.5)	3,958(56.8)	1,378(19.8)	6,971(100.0)

Factors influencing the difference between PNC and ANC (childbirth(s) less than PNC and childbirth(s) over PNC)

A multinomial logistic regression analysis was conducted to identify which independent variables influence the dependent variables, that is, 'childbirth(s) less than PNC' and 'childbirth(s) over PNC'. Analysis of the results is shown in Table 6. The Chi-squared value was 2079.385 (p<.001), demonstrating the overall goodness-of-fit of the model. Also, the regression model's explanatory power was 24.9% with Negelkerke's R^2 value at 0.249.

Compared with 'childbirth(s) identical to PNC', it was found that the factors influencing 'childbirth(s) less than PNC' are age, home ownership, monthly household income, attitude toward cohabitation and childbirth, fairness in sharing housework with husband, intention to use work-family reconciliation policy as it applied to oneself, and intention to use the work-family reconciliation policy as it applied to a spouse. In terms of age (p<.001), the ratio of 'childbirth(s) less than PNC' decreased by 6.4% (ratio: 0.936) with every level of age increase. As for home ownership (p<.001), the ratio of 'childbirth(s) less than PNC' increased by 24.9% (ratio: 1.249) for subjects with no home ownership. It was also found that the ratio of 'childbirth(s) less than PNC' decreased by 3.4% (ratio: 0.966) with every level of increase in monthly average household income (p<.01), and that the ratio decreased by 13.6% (ratio: 0.864) with every level of increase in a conservative attitude toward cohabitation and childbirth (p< .01). In the category of fairness factors, it was found that the ratio of 'childbirth(s) less than PNC' decreased by 6.6% (ratio: 0.934) with every level of decrease in perceived fairness of sharing of housework with a husband (p<.05). It was also found that the ratio of 'childbirth(s) less than PNC' decreased by 49.3% (ratio: 0.507) for subjects who did not wish to use the work-family reconciliation policy as it applies to them (p<.001) while the ratio decreased by 69.3%

(ratio: 0.307) for subjects who did not wish to use the work-family reconciliation policy as it applies to their husband (p<.001).

Thus, compared with the data concerning women with 'childbirth(s) identical to PNC', it was confirmed that 'childbirth(s) less than PNC' is influenced by women being younger, lacking home ownership, having a lower than average monthly household income, having a more progressive attitude toward childbirth during cohabitation, perceiving fairness in sharing housework with their husband, and intending to use the work-family reconciliation policy as it applies to them and their husband.

On the other hand, compared with 'childbirth(s) identical to PNC', it was found that the factors influencing 'childbirth(s) over PNC' are education level, psychological satisfaction for children, perception of workplace support for childbirth and childcare, perception of tax-funded state support for families with multiple children, and intention to use the work-family reconciliation policy as it applies to a husband. In terms of educational level (p<.01), it was found that the ratio of 'childbirth(s) over PNC' decreased by 19.7% (ratio: 1.197) with every level of increase in the education level. In the category of attitudes towards childbirth, it was found that the ratio of 'childbirth(s) over PNC' increased by 14.5% (ratio: 1.145) with every level of decrease in the traditional sense of obligation for children (p<.01). In relation to subjective norms, analysis of the results showed that the ratio of 'childbirth(s) over PNC' increased by 16.0% (ratio: 1.160) with every level of decrease in perceiving of workplace support for childbirth and childcare (p<.05) as necessary while the ratio decreased by 35.8% (ratio: 0.642) with every level of decrease in perceiving of tax-funded state support for families with multiple children (p<.001) as necessary. In the fairness category, it was found that the ratio of 'childbirth(s) over PNC' increased by 51.9% (ratio: 1.519) for subjects who did not wish to use the work-family reconciliation policy as it applies to their husband (p<.05).

Thus, compared with data concerning women with 'childbirth(s) identical to PNC', analysis of the results indicated that 'childbirth(s) over PNC' is influenced by women having a lower education level, having a lower traditional sense of obligation to children, perceiving workplace support for childbirth and childcare as unnecessary, perceiving tax-funded state support for families with multiple children as necessary, and having no intention of using the work-family reconciliation policy as it applies to their husband.

Table 6: Multivariate logistic regression analysis of dependent variables (N=8,535)

Model classification	Childbirth(s) less than PNC (vs. childbirth identical to PNC)				Childbirth(s) over PNC (vs. childbirth identical to PNC)			
Variable name	**B**	**Wald**	**Exp(B)**		**B**	**Wald**	**Exp(B)**	
(Constant value)	4.288	178.975		***	-2.079	29.760		***
Demographic factors								
Age	-0.066	147.201	0.936	***	0.009	2.160	1.009	
Education (Less than university)	-0.079	1.880	0.924		0.180	7.168	1.197	**
Religion (No)	-0.115	4.236	0.891	*	-0.124	3.876	0.883	*
Homeownership (No)	0.222	14.829	1.249	***	0.106	2.486	1.112	
Average monthly household income	-0.035	8.188	0.966	**	-0.008	0.482	0.992	
Income difference	-0.013	0.986	0.987		0.013	0.828	1.013	
Attitude to childbirth								
Cohabitation and childbirth	-0.147	11.090	0.864	**	0.030	0.367	1.031	
Divorce	0.001	0.000	1.001		-0.062	1.467	0.940	
Psychological satisfaction	-0.004	0.006	0.996		0.087	2.319	1.091	
Traditional obligation	0.061	2.073	1.063		0.136	8.076	1.145	**
Subjective norm factors								
Perception of low fertility problems	-0.066	1.994	0.936		-0.007	0.015	0.993	

Model classification	Childbirth(s) less than PNC (vs. childbirth identical to PNC)				Childbirth(s) over PNC (vs. childbirth identical to PNC)			
Perception of how low fertility is relevant to oneself	0.012	0.086	1.012		0.004	0.009	1.004	
Perception of state support for childbirth and childcare	-0.068	1.253	0.934		-0.014	0.045	0.986	
Perception of workplace support for childbirth and childcare	0.073	1.393	1.076		0.149	4.503	1.160	*
Perception of tax-funded government support for multi-children family	-0.046	1.220	0.955		-0.443	78.746	0.642	***
Perceived behavior control								
Full time	0.224	0.058	1.024		0.079	0.551	1.083	
Part-time	0.056	0.351	1.058		0.114	1.260	1.121	
Fairness factors								
Sharing housework	-0.068	3.954	0.934	*	0.031	0.672	1.032	
Leave system (Not aware)	0.008	0.001	1.008		0.273	1.048	1.314	
Work support system (Not aware)	0.170	2.480	1.185		0.000	0.000	1.000	
Intention to use work-family reconciliation policy: wife (No)	-0.679	56.517	0.507	***	0.134	0.918	1.143	
Intention to use work-family reconciliation policy: husband (No)	-1.181	148.743	0.307	***	0.418	5.837	1.519	*
-2LL	15200.678							
x2/df/p	2079.385/44/000							
Negelkerke R2	0.249							

** p<0.05, ** p<0.01, *** p<0.001 Note: PNC=Planned number of children*

Conclusion

This study confirmed the factors influencing the difference between married women's PNC and ANC, based on the ETPB model. Factors included in the research model are: attitude toward childbirth, subjective norms, perceived behavioral control, perceptions of fairness in house chores, and socio-demographics. A secondary data analysis was conducted using a data set extracted from the '2015 National Survey on Fertility and Family Health and Welfare' and limited to 8,535 married Korean women. It can be concluded from an analysis of the results that married women are likely to have fewer children than the PNC when they are young, don't own a home, have a low monthly average household income, have a progressive attitude to childbirth during cohabitation, and intend to use a work-family reconciliation policy as it applies to themselves and their spouses. Conversely, they tend to have more children than the PNC when they have a low education level, have a low traditional sense of obligation towards their children, perceive workplace support for childbirth and childcare as unnecessary, perceive tax-funded state support for families with multiple children as necessary, and don't intend to use the work-family reconciliation policy as it applies to their spouse. The interpretations and conclusions drawn for each category of variables are as follows.

First, the study result indicating age as a determinant of women having fewer children than the PNC can be understood in connection to their age being between 17 and 49 and the fact that some of them have not completed their reproductive life, and thus could have more children. Also, it is likely that women with no home ownership will refrain from realizing their PNC because they might feel that their housing conditions lack stability and may compromise their responsibility for their family. In the same sense, a low monthly average household income can be perceived as a needy situation, which could lead to suppression of

the desire to have children. Second, having a progressive attitude toward childbirth during cohabitation implies the tendency to approve of cohabitation for those not legally married and who don't feel obligated to have children after marriage. Such a progressive attitude can encourage women to focus on and invest in their personal lives with less regard for the traditional idea of childbirth and more emphasis on modern values, and hence adopt a passive attitude toward childbirth. Third, the fact that married women intend to use the work-family reconciliation policy as it applies to them means that they want to keep working. Many policies have been established in Korea to encourage the balance between work life and family life, but there are still obstacles in realizing a work-family balance. Women who want to keep working are likely to be reluctant to have children if adequate conditions for work and family life balance cannot be ensured. The fact that married women intend to use the work-family balance policy as it applies to their spouse also suggests that they have not achieved balance between their work and family life and have difficulties in managing work and childcare on their own.

In this study, the factors influencing the difference between the PNC and the ANC were identified by examining which variable significantly explains childbirth(s) less than PNC and childbirth(s) over the PNC. According to the multivariate logistic regression analysis, it was found that married women are likely to have fewer childbirths than the PNC when they are young, do not have home ownership, have a low monthly average household income, have a progressive attitude toward childbirth during cohabitation, and intend to use the work-family balance policy as it applies to them and to their spouse.

The results of the analysis also showed that married women are likely to have more children than the PNC when they have a low educational background, have a low traditional sense of obligation for children, perceive workplace support for childbirth and childcare as unnecessary, perceive tax-funded state support for families with multiple children as necessary and do not intend to use a work-family reconciliation policy as it applies to their spouse.

To elaborate on these findings, first, it should be noted that the increased ratio of childbirth(s) to PNC in married women with a low education level is the most controversial issue in current Korean society. Previous studies have shown that a higher education level of women is associated with suppression of childbirth. Therefore, given that the proportion of highly educated women continues to increase in Korean society, it is necessary to consider ways to promote the fertility rate of highly educated women. Second, a traditional sense of obligation for children involves the attitude of viewing childbirth as part of one's duty to the society or to carrying on the family line. Accordingly, it is reasonable to assume that, for people with a low traditional sense of obligation toward having children, giving birth to children is less of a mandatory action and more a behavior driven by personal desire. Naturally, to encourage women to have more children than the PNC, childbirth should be encouraged according to personal needs and wants rather than as an obligation. Third, the low demand for workplace support for childbirth and child care in married women who have more children than the PNC rather validates the idea that childbirth, child care, and work, or family affairs and career life, are closely connected. It is likely, for example, that women with many children will experience career interruption or unemployment, and because most women who have had more children than the PNC are unemployed, it is reasonable for them to say that they don't need workplace support. Fourth, it was reported that the rate of married men using the paternity leave option of the work-family reconciliation policy remained at 6% in 2015 (Ministry Gender Equality and Family, 2016), which means that most married men rarely use paternity leave. Such a low usage of the spousal work-family reconciliation policy implies that the system is ineffective. In fact, the general sentiment in Korean society towards married men

using the work-family reconciliation policy is negative. In this regard, it can be concluded that married women are unwilling to use the work-family reconciliation policy as it applies to their husbands because they prefer stable employment for their spouses, who generally make more income. Moreover, because childbirth(s) over the PNC mean that there are additional children to be provided for, it is understandable that married women would value stable and guaranteed employment to secure the funds for caring and educating their child(ren).

Implications and limitations of the study

This study is significant in that the difference between the PNC and the ANC in married women was examined by identifying factors that respectively influence childbirth(s) less than the PNC and childbirth(s) over the PNC. Given that one's life events do not always develop as planned, this study is meaningful in that it analyzes the behaviors of planning childbirth and carrying out childbirth plans, which are important turning points in a woman's life. The findings of this study pose a number of implications for policies promoting women's welfare as well as childbirth.

First, work-family reconciliation should be effectively fulfilled to encourage women to have more children than the PNC. The high rate of career breaks in married women and the low rate of married men using paternal leave not only suggest that women mainly bear responsibility for housework and childcare without spouses' direct participation, but also imply that the existing work-family reconciliation policy has been ineffective for both women and men. With an increased rate of women's degree of attainment and social participation in modern Korean society, more women are advancing into society as workers demanding gender equity in workplaces. Therefore, to raise the fertility rate, it is vital to foster both a home and a workplace environment where men share housework and childcare equally with their spouses, and women effectively balance childbirth and childrearing with their career. The Family-Friendly Certification System promotes a work-family reconciliation policy by granting certification to companies and public institutions that run a family-friendly system in an exemplary manner according to recommended guidelines. In Korea, there are only less than 1,828 companies that have passed the screening for this certification, revealing a serious need to make aggressive changes in society to raise awareness of the system and encourage greater participation by companies (National Statistical Office, 2017).

Second, a practical housing policy should be implemented on a wider scale to mitigate the negative impact a lack of home ownership has on the ANC. Understanding how young couples are forced to delay marriage and childbirth due to over-inflated house prices, the government has reinforced the housing policy to support youths and newly married couples in the Third Saeromaji (New Life Encountering) Plan. However, not many people benefit from this plan because of blind spots in the policy and the difficult eligibility criteria for long-term public rental housing, such as 'Happy House' for young people, newly married couple. Therefore, given that home ownership is a determinant of the number of childbirths, the housing policy should be expanded and integrated with the childbirth encouragement policy.

Third, the government need to supplement and expand its childbirth encouragement policy considering that married women are likely to have more children than planned when they support tax-funded state aid for families with multiple children. This is not to say that the government is not supporting multiple-children families, but that the perceived state support for families where the woman is married and has multiple children may not be sufficiently satisfactory to influence their childbirth behavior. Therefore, support for multiple-children families should be expanded to alleviate the financial difficulties arising from having and

caring for multiple children. It is also important to note that the government's efforts to promote a work-family reconciliation policy as part of a childbirth encouragement and support plan have been ineffective since the findings from this study suggest that awareness of the work-family reconciliation policy has no positive effect on childbirth. The seriousness of the issue of low fertility in Korean society has been publicized aggressively to raise public awareness, and a great deal of financial resources have been used to promote the work-family reconciliation policy through mass media. However, as indicated in this study, awareness is irrelevant to actual usage. In many cases, married men and women are unable to use the policy freely and in a timely manner. Therefore, for improved usage of the work-family reconciliation policy by both men and women, it is necessary to accurately assess the effectiveness of the policy, make appropriate amendments, and raise public awareness of its usefulness. Lastly, gender equity policies should be reinforced to eliminate discrimination against women in the home and workplace environment. South Korea's Gender Equality Index stood at 72.7 out of 100 in 2016, which is a considerable increase from 67.8 points in 2011 (Ministry of Gender Equality and Family, 2016). Nevertheless, the income gap between men and women continues to be a serious issue affecting women's childbirth behavior since women are more likely to have fewer children than planned when the income gap between them and their spouses increases. Therefore, it is important that gender equity policies such as the Gender Equality Wage Disclosure System, introduced in 2017 to narrow the gender wage gap, are implemented more aggressively.

Finally, considering the limitations of this study, the following suggestions are made for future studies: First, this study is limited in that women who have completed childbirth were not identified among the subjects. Accordingly, the ANC does not represent the final number of childbirths since the subjects may include women who will have more children. Therefore, it is recommended that future studies examine the gap between the planned and actual number of children with subjects who have completed childbirth. Second, this study is limited in that the classification of subjects into three groups (those with childbirths less than, identical to, or over the PNC) does not entirely reflect the implications of respective cases of number of children. For instance, a case where the PNC is 4 and the ANC is 3 would be sorted and analyzed as 'childbirth(s) less than PNC', even though this case is considered a multi-children family in Korea. Therefore, it is necessary for future studies to consider multi-children families within all three groups to provide a more accurate analysis regarding factors affecting childbirths less than or over the PNC.

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