

# Female Labor Force Participation and Fertility in South Korea

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Drawing data from the Korea Labor and Income Panel Study that are fitted to Cox proportional hazard model, we attempt to uncover causal impacts of female labor force participation on childbirth decision in South Korea. To control for the dynamic processes in which soon-to-be mother choose to get out of labor force to give birth, we evaluate empirical datasets using three different birth-month lag scenarios: no lag, five and eight month lag. We evaluate parity-specific effects even though parities are limited to the first and second child due to small sample size in higher parities. Our preliminary results suggest that regarding the first childbirth decision, female labor force participation does not seem to make a chilling dent in fertility hazards. Female labor force participation, however, appears to affect the second childbirth decision in a negative direction though the impacts are not as great as widely publicized. Combining two parities, we find somewhat negative impacts of female labor force participation on fertility hazards. These results vary by different lag scenarios with biggest impacts detected in no lag scenario and lowest impacts observed in eight month lag scenario. Finally, these patterns do not change by different measures of female labor force participation.

## Female Labor Force Participation and Fertility in South Korea

Numerous theoretical hypotheses have suggested an inverse relationship between female labor force participation and fertility in modern industrialized countries. Based on the conceptualization of children as consumer durables, classical economic theory, for instance, predicted female labor force participation, other things being equal, would motivate women to delay or forego childbearing efforts if subjective benefits from child would not override opportunity costs (Becker 1960; Easterlin 1978). The negative impacts of female labor force participation on fertility would emerge in the age of reversed wealth flow from parents to children (Caldwell 1980) and in “second demographic transition” from old-fashioned values and beliefs to a new set of world view and attitudes which emphasize self-fulfillment and self-actualization (Lesthaeghe and Neidert 2006; van de Kaa 1987).

Invariable historical trends on a patterned inverse relationship between female labor force participation rates and fertility within a country have lent support for the negative relationship hypothesis. Cross-national comparisons also showed a negative association between two variables though the negative association appears to turn positive in recent years (Brewster and Rindfuss 2000; see Engelhardt, Kögel, and Prskawetz [2004] for a different finding) However, evidence is mixed when it comes to micro data containing individuals’ information. After reviewing research articles published in the late 1970s that analyzed data from the United States, Lehrer and Nerlove (1986) concluded that “the coefficients on labor supply in the fertility equations are negative in most cases, but not always significant.” A bit consistent with this conclusion, a meta-analysis using 30 articles using European and U.S. data found that effects of women’s employment on childbearing are negative with noted

statistical significance except for socialist and post-socialist countries (Matysiak and Vignoli 2007).

Considerable amount of scholarly efforts has been spent in unveiling impacts of female labor force participation on childbearing behaviors in South Korea as well. Analyzing nationally representative cross-sectional data with a demographic technique of parity progression ratio, Lee and colleagues (2010) found that women in labor force tended to show lower probability to advance to a higher order birth than women who were not in labor force. Investigating Census data from 1980 through 2000, Kim, Lee, and Kim (2006) reported that after standardizing age structure, female labor force participation was associated with increased fertility in 1980 and 1990 but no association was found for 2000. Min (2007) examined the Korea Labor Income and Panel Study (KLIPS) 1998-2004 using a parametric Weibull model, a variant of survival data analysis, and found that mothers who had a job after birth of the first child were significantly less likely to have a second child. She also added that nonstandard work as opposed to standard work and working hours were significant contributors to low probability of giving birth of a second child.

This draft contributes to the cumulative knowledge on the impacts of female labor force participation on childbearing and childbirth in South Korea by extending and overcoming limitations of previous analysis in many ways. First, we pay special attention to the dynamic process between female labor force participation and childbirth decision (Bernhardt 1993; Lehrer and Nerlove 1986). In the framework of survival data analysis, this careful approach turns out critical because women who were approaching to childbirth would opt to be out of labor force even though they were pregnant and decided to give birth when they were in labor force. To capture and evaluate overestimation due to this dynamic process, we assess three scenarios: lagging eight months, five months, and zero month to the birth month of a child (see Budig [2003] who lagged 8 months without any justification).

Distinguishable effect sizes by different scenarios, if any, will bring to light a potential threat using cross-sectional data or simple logit models that do not take the dynamic process into account.

As to the empirical dataset, we use KLIPS data collected from 1998 to 2008. Larger sample size allows us to inspect parity-specific effects of female labor force participation as well as total effects including all childbirths (Kim [C-S] 2007). However, we analyze first and second child mainly because we identify very few births of higher parities in our dataset. This is no wonder given that the KLIPS started collecting data from 1998 when South Korea was experiencing the age of lowest low fertility further entrenched after financial crisis in 1997 (Jun 2004; Kim [D-S] 2007). Regarding statistical methods, we choose Cox proportional hazard model after observing remarkable distributions of proportional hazards by main explanatory variables, namely labor force participation variables. In an effort to adjust for multiple failures for a female during the observational period, we adopt the conditional risk set model that treats time from entry time as event time (Prentice, Williams, and Peterson 1981; Cleves 2009). We index female labor force participation using three variables: 1) “in labor force” as opposed to “out of labor force”, 2) “employed” and “unemployed” which will be contrasted with “out of labor force”, 3) “have a job” and “no job.”

In doing so, we uncovered informative sets of findings that can be summarized as follows (See Figure 1 & 2). Regarding the first childbirth decision, female labor force participation does not seem to make a chilling dent in fertility hazards. Female labor force participation, however, appears to affect the second childbirth decision in a negative direction though the impacts are not as great as widely publicized. Combining two parities, we found somewhat negative impacts of female labor force participation on fertility hazards. These results varied by different lag scenarios with biggest impacts assessed in no lag scenario and

lowest impacts unveiled in eight month lag scenario. Finally, these patterns did not change by different measures of female labor force participation.

Figure 1. Hazard rates of first childbearing by FLFP and lagging scenarios

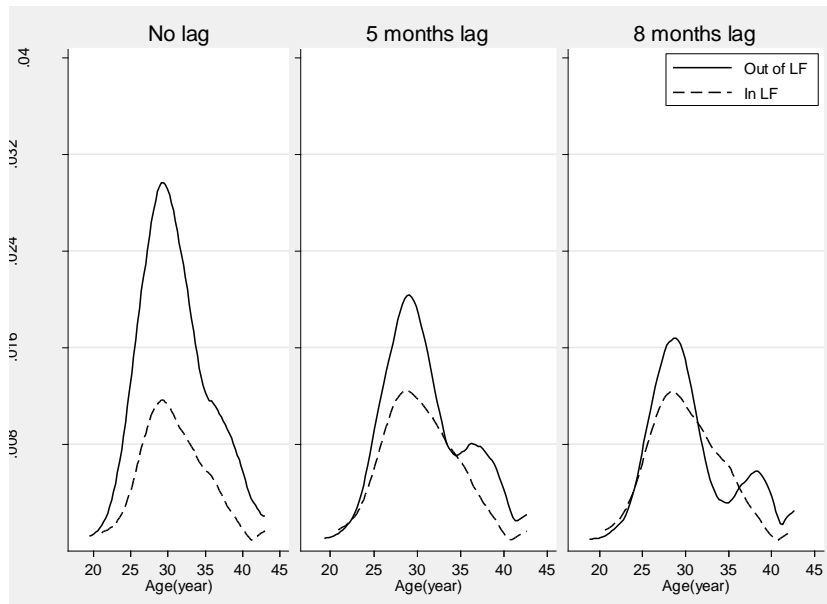


Figure 2. Hazard rates of second childbearing by FLFP and lagging scenarios

