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Research Article

Economic crisis and women's labor force return after childbirth: Evidence from South Korea

Li Ma

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Abstract

BACKGROUND
Most research on women's labor force return after childbirth concentrates on industrialized countries in the West; the link between economic swings and mothers' work-return behavior is rarely addressed. This study closes these gaps by focusing on South Korea, a developed society in East Asia that has in recent decades witnessed increases in female labor force participation and dramatic economic ups and downs. This is the first relevant study on South Korea.

OBJECTIVE
This study examines how women's labor force return after childbirth (with and without career interruption) and their career prospects upon work return varied before, during, and after the Asian financial crisis in South Korea.

METHODS
Logistic and hazard regression models were applied to the Korea Labor and Income Panel Study (KLIPS waves 1-10).

RESULTS
The study reveals an increase in women's immediate work return after childbirth without career interruption since the 1980s. The Asian financial crisis boosted this immediate return pattern. The implementation of job-protected maternity leave further contributed to this pattern. Women who underwent career interruption at first birth were also more likely to re-enter the labor market during and after the crisis than before. Downward occupational moves were especially common during the period of financial crisis.

CONCLUSIONS
The results suggest that the Asian financial crisis triggered a noticeable change in women's post-birth work-return behavior. The economic volatility pushed mothers to hold onto their role in the labor force more strongly than before.

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1. Introduction

Women's labor force participation has been increasing around the world since the 1960s. Increases in women's education, growing preferences among women for non-domestic roles, men's gradual acknowledgement of the benefits of women's employment, growth in female-dominated occupations, and many other factors have been conducive to these increases (England and Farkas 1986). Still, when becoming a mother, most women take some time out of the labor force for childcare. Whether mothers return to the labor force after childbirth, and when they return, varies across contexts.

A great deal of research has addressed women's labor force return after childbirth in Western countries. By and large the main foci have been the driving forces of return and mothers' career challenges. Women's own accumulation of human capital, family policies concerning reconciliation of work and family commitment, and household financial needs have been documented as factors that either enhance or hinder women's return to work after childbearing (Even 1987; Gustafsson et al. 1996; Dex et al. 1998; Stier, Lewin-Epstein and Braun 2001; Rønsen and Sundström 2002; Baker and Milligan 2008; Baum II 2003; Berger and Waldfogel 2004; Lalive and Zweimüller 2009). The length of time out has been congruously argued to have played a pivotal role in determining women's career prospects upon return. A longer break from work often leads to reduced job status and a lower paid position (Gupta and Smith 2002; Smeaton 2006; Aisenbrey, Evertsson and Grunow 2009; Gangl and Ziefle 2009; Evertsson and Duvander 2010).

In traditional societies where the family model is based on more segregated gender roles, a family may decide that the woman should provide care at home while the man provides economic support for the household (Moen and Wethington 1992). However, in times of economic upheaval when the main breadwinner is faced with financial deprivation, families may develop alternative strategies to lessen the gap between family needs and available resources (Tilly 1979). Women may then contribute to the family economy either by seeking paid work or by more labor-intensive domestic activity (Tilly and Scott 1978; Goldin 1981).

Most relevant research concentrates on industrialized and developed societies in Europe and North America, while not much relevant knowledge is documented for developed countries in East Asia. The link between economic swings and women's labor force return after childbirth is rarely addressed in the literature, though the impact of economic crisis on other aspects of family dynamics, such as family formation and fertility, has been widely documented (Sobotka, Skirbekk and Philipov 2011; Kreyenfeld, Andersson and Pailhé 2012). This study contributes to closing these gaps by focusing on South Korea (hereafter Korea), a developed society in East Asia that has

in recent decades witnessed dramatic economic ups and downs, substantial education expansion, increases in female labor force participation, family policy reform, and social value change.

This study demonstrates how Korean women's post-birth labor force behavior varies before, during, and after the Asian financial crisis and what career prospects women are faced with during these periods. It is the first study to focus on Korean women's post-birth labor force return and career prospects from an individual-level perspective.

The rest of the paper is as follows. The second section reviews literature on the main driving forces of women's post-birth labor force return in Western populations, followed by an account of research findings related to women's career prospects upon return to work. The third section introduces the specific socio-economic context of Korea. The fourth section accounts for the data used for the analysis as well as the research design. The fifth section presents and discusses the main findings. The last section draws conclusions by relating the study results to findings from other contexts.

2. Women's post-birth labor force return and career prospects

In previous literature, women's human capital accumulation, the institutional settings concerning the reconciliation of work and family responsibilities, and household financial needs have been found to constitute the main factors that affect women's work return after childbirth. In this section I will summarize how these factors may be associated with women's post-birth employment and how the length of time out may influence women's career prospects in different contexts.

2.1 Women's human capital accumulation

Women's pre-birth human capital accumulation, either through education or work, is frequently argued to have played a pivotal role in women's post-birth labor force return (Gustafsson et al. 1996). In the first place, high educational attainment is important in securing job continuity. Based on the Luxembourg Income Study, Pettit and Hook (2005) find that across 19 selected countries women with high levels of education are more likely to be employed after childbirth than the less educated[2]. Waldfogel et al.

[2] The selected 19 countries are Australia, Austria, Belgium, Canada, the Czech Republic, Demark, Finland, France, Germany, Hungary, Italy, Luxembourg, Netherlands, Norway, Poland, Russia Federation, Sweden, the UK, and the US.

(1999) draw a similar conclusion in their comparative study on labor force participation of women with young children in the US, Britain, and Japan.

The accumulation of human capital is a lifetime process (Mincer and Polachek 1974). In the post-school life stage, much of the continued accumulation occurs at work. Pre-birth employment experience, earning power, and occupational status have been found to be closely associated with women's employment continuity after childbirth. For example, Even (1987) finds a positive effect of prior work experience on women's labor force return in the US. He finds that working late into pregnancy is a strong indicator of work return. Gustafsson et al. (1996) make similar observations in the context of West Germany, finding that the more experience a woman collects from pre-birth jobs, the earlier she will resume employment after childbirth. Dex et al. (1998) find that high income at the pre-birth job encourages women to resume employment quickly. Smeaton (2006) finds that women employed in professional and managerial occupations in Britain have more incentive to return to work after childbirth than others. In short, women with greater labor force engagement should, all else being equal, have a higher return intensity and faster return speed than others.

Highly educated women stand a better chance than others of acquiring jobs of high occupational status. Leaving such employment positions for a childrearing break may result in high opportunity costs. To maintain stability, security, high earning levels, and career enhancement, highly educated women may return to jobs more quickly than others. Furthermore, they are able to use their economic resources to combine caring and career: in a context short of public childcare services the highly educated are more able to afford private childcare than others (Smeaton 2006). On the other hand the less educated have less to lose from temporary labor market disengagement and are thus more likely to resume homemaker positions after childbirth, as is the case in West Germany (Gustafsson et al. 1996).

2.2 Family policies

In many contexts, entitlement to job-protected maternity or parental leave has increased women's attachment to the labor force after childbirth. The timing of return is largely determined by policies regulating how long the leave is paid. A woman considers the possible benefits before deciding whether or not to return to work at a certain point in time (Klerman and Leibowitz 1994, 1998a, 1998b, 1999; Berger and Waldfogel 2004).

Women eligible for leave benefit are found to have higher intensity of return to their pre-birth employment or to return to work more quickly than non-eligible women. For example, maternity leave legislation in the US has increased the number of mothers who return to their pre-birth jobs; women entitled to this leave are more likely to take a

leave of up to the legally set duration and return to work more quickly than non-eligible women (Baum II 2003; Berger and Waldfogel 2004; Waldfogel et al. 1999). In Canada, too, job-protected maternity leave entitlement has increased eligible women's job continuity with their pre-birth employer (Baker and Milligan 2008). Swedish mothers who are eligible for paid parental leave resume employment much faster than non-eligible mothers (Rønsen and Sundström 2002). Maternity/parental leave policies in Britain and Japan have also been found to increase women's employment after childbirth (Waldfogel 1998; Waldfogel et al. 1999).

However, extensive parental leave coupled with few childcare options may encourage the breadwinner/homemaker model, with women staying at home to care for children and men working in the paid labor force. For example, Austria expanded its parental leave to two years in 1990, with the overwhelming majority of eligible women taking advantage of the longer parental leave. Regulations facilitating the uptake of parental leave in the case of a second or subsequent birth led to further labor market absence among mothers (Pettit and Hook 2005; Lalive and Zweimüller 2009).

The public provision of childcare can reduce the financial burden of childcare for a household and promote mothers' return to the labor force. The absence of affordable and high-quality childcare can be a major barrier to mothers' re-employment (Waldfogel et al. 1999; OECD 2007). Pettit and Hook (2005) find that in countries (e.g., the Czech Republic) where public childcare provision is low, having a child under three years of age hinders women's employment probability; while in countries where the provision is high (e.g., Belgium, Sweden, or Denmark), the hindering role of having small children is less pronounced.

The possibility to work flexible hours and take days off to care for sick children can also facilitate the reconciliation of work and family life, and therefore promote women's labor force return (OECD 2007). If working mothers have more time to attend to their children, their work-life conflict is greatly reduced.

2.3 Financial needs and economic uncertainty

A household's financial needs are another important factor influencing women's decisions on whether and when to return to work after becoming a mother. Women in greater financial need usually return to the labor force quickly (Klerman and Leibowitz 1994, 1998a, 1998b, 1999). Smeaton (2006) asserts that economic imperatives increasingly dictate women's employment decisions. She finds that household financial burdens due to mortgage debt pushed British mothers into early work return in the mid-1990s, and also that the financial pressure of raising a child alone drove single mothers back to work more quickly.

Sobotka, Skirbekk, and Philipov (2011) review how economic recessions are related to family formation and fertility in the developed world. Kreyenfeld, Andersson, and Pailhé (2012) summarize how economic uncertainties are related to fertility across Europe. However, the issue of how recessions may affect women's post-birth labor force participation is much less explored worldwide. Pettit and Hook (2005) find that the employment intensity of married women and women with children is high when the current unemployment rate is high, indicating that an unstable economic environment can prompt married women and women with children to take up work. Economic instability may enhance women's participation in the labor force when their husbands or partners face a high risk of being laid off.

2.4 Other factors

Apart from these considerations, other factors have been found to play a role in re-employment decisions. The presence of small children in the household depresses women's employment, as do plans to have more children (Smeaton 2006). When husbands have high educational attainment or high earning power, women's probability of returning to the labor market is reduced and their career interruptions lengthen (Gustafsson et al. 1996; Dex et al. 1998). Attitudes toward women's employment and its assumed consequences for the well-being of the family also affect women's return to the labor market. Research shows that women who believe that children and family will suffer if a mother goes out to work have a lower intensity of resuming employment after childbirth than do women who disagree with this statement. Younger cohorts resume employment more quickly than older cohorts, with younger women tending to hold a more positive view toward employment and economic independence (Smeaton 2006).

2.5 Women's career prospects upon return

Most women face career challenges upon labor force return after childbirth. The timing of return is essential for career development; a longer break from work may permanently damage a woman's employment and earnings profile (OECD 2007). In the US a long childbearing-related absence from work reduces women's chance of an upward occupational move and increases their risk of a downward move (Aisenbrey, Evertsson and Grunow 2009). Also, in Sweden, it has been shown that women's career prospects are better if they return to paid work sooner rather than later. Employment interruption longer than 16 months reduces a woman's chance of an upward

occupational move (Evertsson and Duvander 2010). In the context of Japan it is common for women who resume employment after childbirth to take jobs that are inferior to those they left (Raymo and Lim 2010). They largely resume work in nonstandard or temporary jobs (Yu 2002).

Prolonged non-participation in the labor force may lead to a depreciation of existing skills. The longer the break, the higher the depreciation of human capital (Mincer and Polachek 1974). Women who take longer breaks are often regarded by employers as less productive and less committed to work than those who take a short or no leave of absence (Görlich and De Grip 2009). This perception may place women in an unfavorable position and negatively influence their chance of re-employment, promotion, and payment when they return to work (Stier, Lewin-Epstein and Braun 2001; Sigle-Rusthon and Waldfogel 2007).

In summary, previous studies have demonstrated that women's own human capital accumulation, policy configurations to facilitate the combination of work and family responsibilities, and financial needs are the main driving forces for women's labor force return after childbirth. A longer time out of the labor force usually leads to a lower intensity of labor force return as well as less promising career prospects. There is relatively little knowledge of how business cycles may be associated with women's post-birth work return and their career prospects upon return.

3. The context of Korea

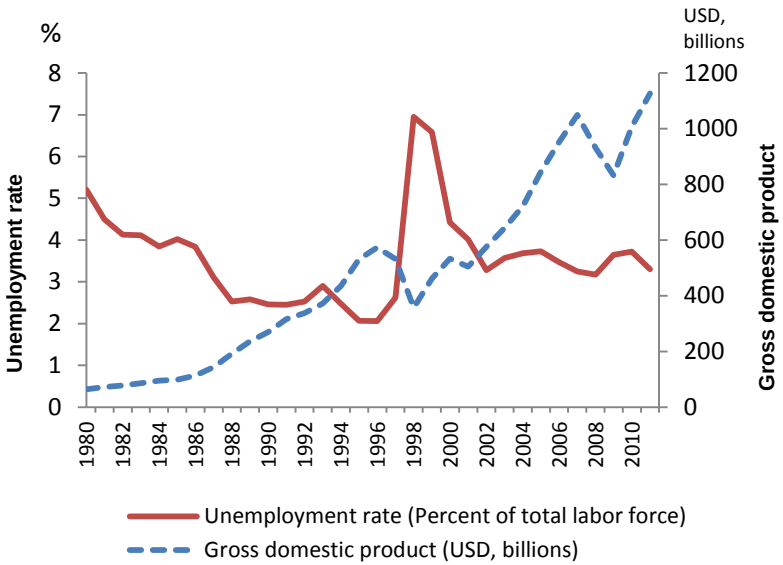
Korea has experienced economic booms as well as a severe economic crisis in recent decades. These economic developments have been accompanied by pronounced institutional, social, and demographic changes: a rise in women's educational attainment, an increase in female labor force participation, family policy reform, and changes in social attitudes toward women's non-domestic roles. These factors have all influenced women's lives, including their economic activity after childbirth.

3.1 Korea's economic development and the Asian financial crisis

Korea's gross domestic product (GDP) increased steadily and rapidly from the 1980s to the late 1990s (Figure 1). Its economic achievement was globally recognized when Korea became a member of the OECD in 1996. During this boom period many large Korean companies developed their own internal labor market system that offered insiders considerable job stability and relatively high salaries (Kye 2008a). However, the Asian financial crisis in late 1997 brought uncertainty to this relatively stable

situation. In 1998 Korea's GDP dropped dramatically, the unemployment rate skyrocketed, and economic uncertainty was felt in every corner of society. Between 1997 and 1998 the men's employment rate dropped from 86% to 80% and women's from 59% to 54% (OECD 2012a). Female employees were often 'first out' in the face of emerging economic uncertainty.

Figure 1: Gross domestic product (GDP) and unemployment rate since 1980, Korea



Source: International Monetary Fund, World Economic Outlook Database, April 2011.

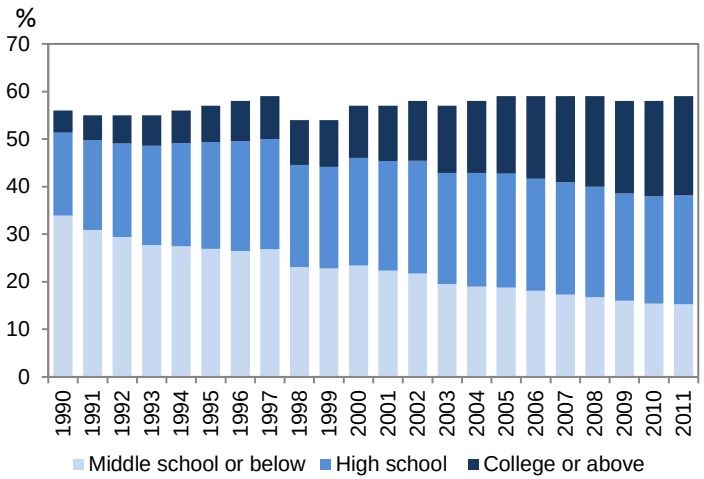
The *Labor Standard Act* was amended in 1998 to prevent the crisis getting worse and to reinvigorate the national economy. The previous employment protection system was abolished. The labor market was overhauled and restructured and the system of internal labor markets weakened (Kye 2008a). To protect themselves many firms laid off workers and full-time employment positions were converted to part-time and temporary jobs. A large number of workers found themselves either in temporary jobs or unemployed. Workers at large companies with an established internal labor market system were less likely to experience job turnover than workers from other companies (Kye 2008a). It was not until 2002 that the country regained its economic growth.

3.2 Rise of women's educational attainment and labor force participation

"The educational advancement of young Korean women during the last three decades is nothing but spectacular and, to our knowledge, unprecedented in the recent history of the world," remark Tsuya, Choe, and Wang (2009:16). Statistics show that the proportion of female high school graduates who advanced to higher education was only 20% in 1975. This number increased to 34% in 1985, 50% in 1995, and 81% in 2005 (Choe and Retherford 2009; Frejka, Jones and Shardon 2010). In Korea higher education is a necessity for attaining a well-paid and secure job (Seth 2002; Eun 2007; Choe and Retherford 2009).

However, high educational attainment has not given Korean women the same high labor market rewards as it does for men. Women's labor force engagement has not developed at the same pace as their educational attainment; in fact their employment rates have increased very slowly (Figure 2). Over time the labor force has become increasingly dominated by the highly educated.

Figure 2: Employment rates[3] of women aged 20-49, by educational attainment of employed women, Korea, 1990-2011



Source: Author's own calculation based on OECD labor force statistics database & Korean Statistical Information Service (KOSIS) 2012.

[3] Employment rate refers to the proportion of employed in a given population.

To encourage women to enter the labor market the Korean government launched the *Equal Employment Act* in 1988, prohibiting discrimination against women in employment, wages, and working conditions. It also prohibited discrimination against employed women due to marriage, pregnancy, or childbirth. Meanwhile, a female public employee target system was established to enhance the recruitment of women in the public sector (Cho 2000). However, only around 25% of the total female workforce held regular positions in the 1990s. As of 2011 this figure had increased to around 40% (Statistics Korea 2011; OECD 2012a).

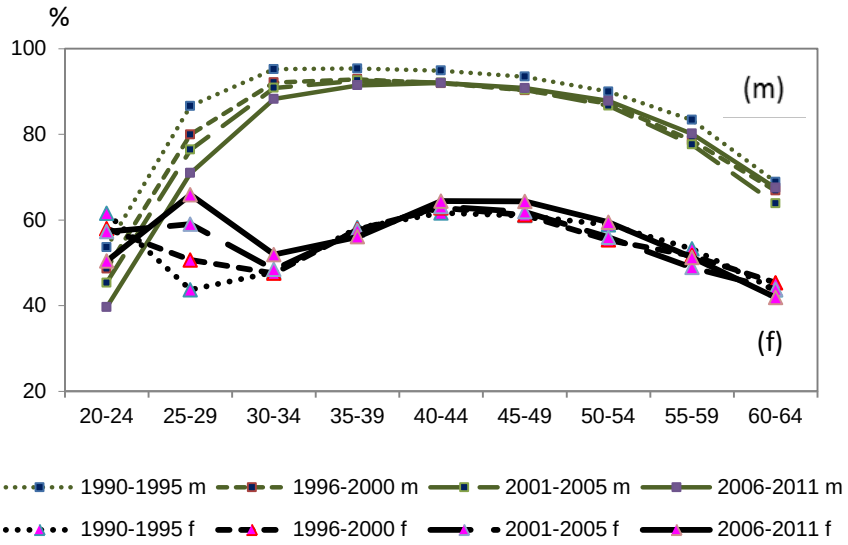
A closer look at Figure 2 shows that the slow but steady increase in women's employment rates was interrupted by the Asian financial crisis, as women's employment rates experienced a drop in 1998. Women with middle or low educational attainment were more likely to be victims of the crisis. The employment rate of highly educated women was not affected.

3.3 Korean women's family commitment and labor market restrictions

Figure 3 shows the employment rates of men and women over the life course by calendar period. For all calendar periods the rates of women aged above 25 have been much lower than those of men. In sharp contrast to men's employment profile, women's labor force participation reduces sharply at primary childbearing ages (25-34). These M-curved patterns across time indicate that female employment behavior has not changed much over the past decades: most women interrupt their employment during childbearing years. The low employment rates (of about 60% since the 1990s, see Figure 2 and Figure 3) additionally indicate that it is typical of Korean women to temporarily or permanently sacrifice their career for the sake of family formation and expansion.

This withdrawal further implies that gender equality does not progress in tandem with the rise of women's educational attainment. Once women have established a family, both society and their family expect them to leave the labor market to care for their husband and children at home. At this stage men act as the sole economic support in the family and women play the role of primary caregiver. When children reach school age and need less care, women often return to the labor force. But it is very rare for them to become employed on a regular basis. More often they take a temporary job or shift to family businesses (Brinton et al. 1995).

Figure 3: Employment rates by age, calendar period, and gender, Korea



Source: OECD 2012b.

Apart from family and social expectations, demanding labor market conditions may push women back into the home. Workers in Korea have little opportunity to work flexible hours. The normal weekly working hours per person in Korea are the highest among OECD countries (OECD 2012a). Korean women either work long hours or do not work at all. Moreover, the gender wage gap in Korea is the largest among OECD countries (OECD 2012a). In this context Korean women might not have much incentive to remain in their job upon family formation.

Nonetheless, Figure 3 displays that the number of women who drop out of the labor market at ages 25-34 has been decreasing slightly, implying that social expectations and labor market restrictions have become weaker obstacles to women's labor market engagement. Attracted by the labor market, some women may find it difficult to give up paid work for homemaking (Eun 2007).

3.4 Family policy reform

Women's work return after childbirth is closely linked to a nation's policy regulations. Job-protected maternity/parental leave, the provision of childcare, and the possibility of working flexible hours are the three policy directives recommended by OECD to facilitate women's reconciliation of work and family life (OECD 2011). Measured against these policy directives, Korea's achievement has been far from satisfactory. First, working flexible hours has been almost impossible in Korea, as mentioned above; only very recently did working mothers gain the right to work reduced hours. Second, before 2008, day care services for children below three years of age were limited, and childcare was mainly a private responsibility. Between 1998 and 2007 Korea's public expenditure on childcare and early education services was the lowest among OECD countries (OECD 2012b). In 2005 20% of children below three years of age had access to childcare services. In 2008 the childcare enrollment rate for children under three years of age had increased to 38%, reaching and surpassing the OECD average of 30% (OECD 2012b).

Between 1953 and 2001 maternity leave in Korea remained unchanged at 60 days of unpaid leave. In 2001, 90 days of fully paid maternity leave (with 100% income compensation) was implemented (Lee 2009; MOEL 2011a; MOEL 2011b). Dismissal during maternity leave is prohibited; women have the legal right to return to the same or a similar position (ILO 2006). For women with employment insurance the employer covers the first 60 days and the insurance covers the remaining 30 days (Kim 2007; Peng 2009). Since 2006 the insurance covers the total maternity leave period for employees in small- and medium-sized companies; for insured women in large companies the employer still has to take responsibility for two-thirds of the leave (Suzuki 2008; Lee 2009; Peng 2009; MOEL 2011a). For employees with no insurance coverage the employer should in principle take full responsibility for offering leave and benefits. However, this is mainly a recommendation. The new policy enforcement is constrained, as not all firms institute the maternity protection system (Sung 2003). More than 30% of firms violate the legislation by not paying or only partially paying the benefit (Won and Pascall 2004).

Since 2001 employees with employment insurance can enjoy additional job-protected parental leave with a flat-rate compensation of 200,000 KRW (around 130 USD) per month for 10.5 months (ILO 2006; Suzuki 2008; Kim 2007; Peng 2009). The financial support for this parental leave was set to reflect around one-eighth of women's average income and one-tenth of men's (Lee 2009). Consequently, women's uptake of parental leave has been very low and fathers' uptake negligible (OECD 2006). However from 2011 employment insurance has provided 40% of the ordinary wage for 12 months, rather than the previous flat rate (MOEL 2011a). Since then the uptake of parental leave has started to rise. However, neither the maternity nor the parental leave

benefit is universal. Women eligible for leave benefit are usually those who hold stable and regular employment positions (Ma 2013).

3.5 Social attitudes toward women's employment

The traditional view of the woman as a wife and mother has long been dominant in Korean society. A working girl was not valued on the marriage market, because she was not believed to be a good wife (Park 1991). However, in recent decades economic development, educational expansion, and the rise of women's employment have posed direct challenges to such cultural traditions. With the number of women in the labor force increasing there has been a growing recognition that women have the right to be self-actualized both within and outside the home. In addition, the unexpected arrival of the financial crisis, which brought great uncertainty to Korean society, made men aware of the financial advantage of having a working wife. Employed women have become favored on the marriage market, and working wives have become more socially acceptable (Anderson and Kohler 2013).

In short, Korea experienced a dramatic economic boom from the 1970s to the late 1990s and an intense financial crisis during 1998-2001. Women have become increasingly involved in the labor market, though at a slow pace. Family policies facilitating the reconciliation of women's work and family life have improved, though they have not yet or have only very recently reached the standard set by the OECD. Traditionally, Korea has been a gendered society, where men provide the financial support and women are the primary care-givers. Today the traditional view of women as wives is starting to lose ground to a gradual acknowledgement of women's non-domestic role.

3.6 Research questions

Cycles of economic boom, recession, and recovery in a developed society with a strong gender-based family model provide the context of my study on women's post-birth labor force return behavior. On the one hand, it is more difficult for mothers to maintain employment during a crisis period. On the other hand, women have stronger incentives to seek employment to protect their families against economic insecurity. Based on relevant research on other developed societies and the specific socio-economic context of Korea, my main research questions are:

1. What are the possible driving forces of Korean women's labor force return after childbirth?
2. How does women's labor force return after childbirth vary across business cycles?
3. How do women's career prospects vary by the length of time out and across business cycles?

4. Data and methods

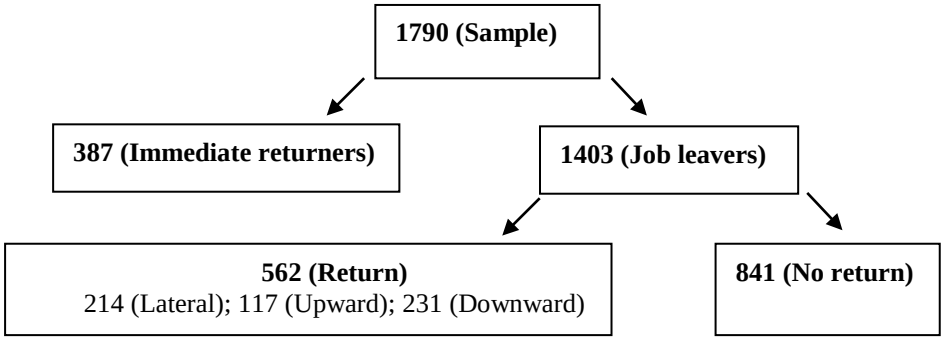
The data used for analyses are from waves 1 to 10 of the Korea Labor and Income Panel Study (KLIPS), Korea's only labor-related panel survey, initiated by the Korea Labor Institute. The first wave was conducted in 1998 with an original sample of 5,000 households in urban areas. Direct face-to-face interviews with the household reference person or the spouse were carried out to collect retrospective and current information on household members aged above 15 years. Data on individuals' demographic characteristics (such as birth history and marital status changes), educational attainment, work history, and job characteristics were collected. The survey was subsequently conducted annually to track changes in characteristics of households and individuals. If an individual within a household turned 15, or if an individual aged above 15 joined a sampled household, he or she was included in the survey. New respondent data were collected regarding retrospective information. If some members of a household moved out and formed new families, the new households and their members were tracked as well. The most recent data for this study are from wave 10, conducted in 2007.

I study women who have experienced at least one birth. Since non-marital childbearing is very low in Korea, I furthermore concentrate on the vast majority of women who had their first child within their first marriage. Among these women I focus on those who were employed as wage earners before entering motherhood. The data provide detailed information on these women's work history, including the exact month that each job started and ended. Women who worked as non-wage earners at the last job before childbearing, mainly those working in family businesses or in agriculture, are not included in the study, as our data do not provide information on their job characteristics. The data do not provide information on whether or when women took maternity or parental leave. There are practically no reports of leave-taking around childbirth. It seems that our female respondents do not regard taking maternity leave as a career interruption if they return to their previous employer immediately after the leave period expires. This makes it difficult to distinguish between those who did not interrupt their employment at childbirth at all, and those who took only a brief maternity leave.

Given that working women could claim a two-month unpaid maternity leave before 2001 and a three-month job-protected paid maternity leave after the policy reform of 2001, and that uptake of parental leave was low before 2007 (our last interview year), a woman will be defined as an immediate returner if her employment record does not show any employment interruption from the pre-birth job until the third month (before the 2001 policy reform) or the fourth month (after policy reform) after childbearing. In contrast, women who reported a break from their pre-birth job around first birth are defined as job leavers. Appendix 1 shows the number of cases involved in this study. A total of 2,748 women had labor market experience before giving birth for the first time. 332 non-wage earners are excluded because their labor market characteristics are not traceable in our data. Thirty-five women whose pre-birth work experience was less than three months are further excluded, as I am only looking at women with noticeable work experience. Women with their husband's information missing at the time of first birth and women who gave birth for the first time during singlehood are not taken into account. To be able to examine women's career opportunities upon return, I also exclude women with missing information on pre-birth and post-birth occupations. The observation time of this study is the period from 1980 to 2007.

Following the selection criteria, a total sample of 1,790 women enters observation (Table 1). Of these women, 387 show no employment interruption and 1,403 interrupt their employment around the birth of their first child. Of these job leavers, 562 returned to the labor force before they turned 45 or the last interview time, or within ten years after the first birth; the remaining 841 had not returned to the labor market before the end of our observation time.

Table 1: Descriptive statistics for women under observation



Given the features of the data distribution, I design a three-stage analysis to address my research questions. In the first stage I apply a logistic regression model to the whole sample to capture how human capital accumulation, family policy change, business cycles, and financial needs may have been associated with mothers remaining in employment without any reported career interruption after the birth of their first child.

Table 2 presents descriptive statistics of the included variables in the first no-career interruption model. "Calendar years" is an important indicator, as its estimates can reveal how women's early job return after first birth varies across calendar time. Calendar years are grouped into four periods. 1980-1989 indicates a decade of economic growth; 1990-1997 stands for a consecutive economic boom period; 1998-2001 refers to the economic downturn following the 1997 Asian financial crisis; and 2002-2007 indicates the period of economic recovery as well as that of family policy reform.

The cluster of variables for women's human capital accumulation consists of variables related to their educational attainment and labor market characteristics before first birth. Women's educational attainment is grouped into three educational levels: middle school or below (low), high school (middle), and university or above (high).

Women's labor market characteristics are represented by measures for occupational status, type of workplace, income, and the length of work experience prior to first birth. Occupational status, workplace and income are measured at a woman's last pre-birth job. Based on Socioeconomic Index (SEI) scores of occupations as defined by Ganzeboom and Treiman (1996), a woman's occupational status is stratified as low (e.g., elementary workers), middle (e.g., clerks and sales workers) or high (e.g., managers and professionals) (see Appendix 2).

Workplace depicts whether the woman's employment was in the private or public sector. Public sector covers workplaces such as schools, hospitals, government and government branches, government-related companies (government-financed or public corporations), and state-owned enterprises; these represent workplaces that offer regular and relatively stable employment positions. All other workplaces outside the public sector are grouped as "private". Descriptive statistics show that more than half of the women observed in our study were private sector employees. They had a higher chance of holding unstable jobs, and hence, less opportunity to be qualified for the job-protected maternity or parental leave benefit.

Income after tax is divided evenly into three categories based on income distribution within each calendar year: values lower than the 33rd percentile represent low level of income and values higher than the 66th percentile represent high level of income. Women who fail to report their labor market characteristics are categorized as "missing" in each respective covariate.

Husband's education is also considered. His employment status is first specified as "employed" or "non-employed". I further divide the employed into "wage earners" and "non-wage earners". The wage earners are further characterized as low-, middle- and high-income earners, in the same way as for women. The income level of non-wage earners working in family businesses and agriculture is not available in our data[4].

Table 2: Descriptive statistics of variables for immediate return model (Logistic regression)

	Obs	%	Returns	%		Obs	%	Returns	%
Calendar years					**Workplace**				
1980–1989	519	29	87	22	Private	955	53	158	41
1990–1997	555	31	118	30	Public	268	15	161	42
1998–2001	314	18	66	17	Missing	567	32	68	18
2002–2007	402	22	116	30					
Woman's age					**Income**				
15–24	447	25	65	17	Low	227	13	16	4
25–29	1093	61	259	67	Middle	513	29	55	14
30–34	223	12	61	16	High	569	32	257	66
35–44	27	2	2	1	Missing	481	27	59	15
Woman's education					**Husband's education**				
Low	188	11	27	7	Low	173	102	26	7
Middle	927	52	122	32	Middle	738	411	101	26
High	675	38	238	61	High	879	499	260	67
Work experience					**Husband's employment**				
≤2 years	271	15	36	9	Wage earner-Low	401	22	69	18
2< years≤5	718	40	128	33	Wage earner-Middle	371	21	79	20
>5 years	801	45	223	58	Wage earner-High	311	17	99	26
					Non-wage earner & missing	413	23	82	21
Occupational status					Non-employed	294	16	58	15
Low	262	155	33	9					
Middle	1133	63	214	55					
High	395	22	140	36					
Total	1790		387			1790		387	

Source: KLIPS, author's own calculations.

[4] In the variable of "husband's employment", the category of "non-wage earners & missing" is a combination of non-wage earners and wage earners whose income value is missing in our data.

In the second stage I apply event-history analysis (hazard regression) to the sub-sample of women who experienced career interruption at first birth, to explore how these women's labor force return developed over time. The dependent variable in this stage is the intensity of first-time job return among job leavers after first birth. The advantage of applying event-history analysis at this stage is that we can not only observe how the basic time factor - time since first birth, which indicates the duration of career interruption - is related to women's probability of resuming a job, but also consider the role of variables that progress over time. All the explanatory factors examined in the first stage of the analysis are covered in this stage as well. Occupational status, workplace, and income reflect the characteristics of women's last job before first birth; educational level and work experience are fixed at the time of first birth; all other covariates (including calendar years, woman's age, husband's education, and husband's income) are updated month by month from the time of first birth (see Appendix 3). Further, two additional variables are included. In recognition that some women might have left the labor market before childbirth, the length of any pre-birth employment absence (fixed at first birth) is controlled for. Further, "parity progression" (time-variant) examines whether the process of having additional children depresses women's labor force return. It deserves note that more than 50% of women who return to the labor force after taking a break at first birth are mothers of two children, demonstrating that their second child was born during the period of labor-market absence, which had started around the birth of their first child.

In the third stage I further explore the career prospects of job leavers based on the same sub-sample of women as in the second-stage analysis. The competing risks of making a lateral, upward, or downward occupational move are estimated by three separate hazard regression models. Within each model I estimate one transition while censoring for the occurrence of the other two. Occupational moves are measured as changes of SEI scores between the pre-birth and first post-birth occupation categories. A positive change of at least 10% in SEI scores at a woman's first job upon return is defined as an upward move. A negative change of 10% or more is defined as a downward move. According to this classification, 214 women resumed their previous job or got a job of similar status; 117 women took a job of higher occupational status; and 231 women underwent a downward occupational move (Table 1).

For the second- and third-stage analyses, our observation starts from the month of first birth and stops at the month when a woman returns to the labor force. Further, the episodes are censored at the time when the youngest child turns 10 or the woman turns 45 years old, or at the last interview time, whichever comes first. The observation is also censored when a marriage disruption occurs. The length of the employment interruption covers the entire period out of work, including any extension of the work absence by a second or a third birth, provided these later births occur within the same

interruption period that started after the first birth. That is, there is no censoring at the arrival of a woman's second or third child.

5. Results

5.1 Immediate work return without career interruption

Table 3 presents odds ratios of women's immediate labor force return after childbirth from the logistic regression models. Model 1 involves calendar years, woman's age, and educational attainment. Models 2 to 4 include women's pre-birth labor market characteristics: work experience, occupational status, workplace, and income. Model 5 takes into account husbands' educational attainment and income. The likelihood ratio tests show that the inclusion of women's labor market features significantly improves the model fit.

Model 1 shows no clear pattern of women's immediate labor force return across calendar periods. The return probability during the economic downturn period (1998-2001) was slightly reduced; the probability for 2002-2007 slightly exceeds that of other periods. When women's labor market characteristics, especially income, are taken into account a more pronounced trend occurs. An overall increase in immediate work return emerges: the relatively depressed work return during the recession period disappears; instead, there is an upward trend beginning in the 1980s. During the period after the crisis ended, women's immediate return did not resume the pre-crisis pattern. Instead, the trend developed upward at a faster speed. The inclusion of husband's education and income strengthens the overall increasing trend.

The findings reflect that once individual-level factors are controlled for, unstable economic conditions may foster women's job continuity after childbirth without employment interruptions. Women tried to keep their link with the labor market to reduce the uncertainty brought about by the financial crisis. During the period when the economy was recovering, women still held to their role as workers in the labor market. Apart from the boosting effect of economic uncertainty, other factors may also be at play in this upward development. The job-protected maternity leave implemented in late 2001 may have enhanced women's early job return during 2002-2007. Besides, women's increasing engagement in the labor market, their increasingly positive attitudes toward employment, and men's awareness of the merit of having a working wife during the unstable economic period may have encouraged women to stay in the labor force.

Highly educated women have significantly higher odds of resuming employment quickly than the lower educated, which is often the case in other developed countries.

When women's labor market features are considered the difference between highly educated and low-educated women is significantly reduced: the estimated value of higher education stepwise loses its significance. In contrast, the return rate of middle-educated women remains significantly low. The low- and highly educated women are more likely to make an immediate return to the labor force.

Women's work characteristics are strongly associated with their early labor force return. The length of work experience significantly raises women's chance of immediate return. The inclusion of other work factors in Models 3-4 reduces the difference between levels but does not alter the pattern. The immediate return odds for women with high occupational status exceed those of women with lower status. The inclusion of workplace and income reduces the estimation significance of previous factors. The return odds of public employees are nearly six times those of women employed in the private sector. The return probability of high-income-earning women is more than nine times that of low-income-earning women, all else being equal.

Women with a husband working as a non-wage earner and women whose husband was unemployed have relatively higher odds of resuming employment without career interruption. Further, among women with a wage-earner husband, those with a high-income husband appear more likely to return to the labor force immediately after childbirth than those whose husband's earning power is weaker. This is partly due to the effect of assortative mating; namely, women with high incomes tend to marry men with incomes that match their own earnings. A comparison of the estimates of the earning power of women and men indicates that a woman's immediate labor force return is much more sensitive to her own income than to her husband's.

Table 3: Odds ratios of women's immediate return to the labor force after childbearing, Korea, 1980–2007

	Model 1		Model 2		Model 3		Model 4		Model 5	
	OR		OR		OR		OR		OR	
Calendar years										
1980–1989	1		1		1		1		1	
1990–1997	1.09		1.12		1.23		1.11		1.15	
1998–2001	0.86		0.84		1.06		1.34		1.42	
2002–2007	1.15		1.06		1.38		1.90	***	2.02	***
Woman's age										
15–24	1		1		1		1		1	
25–29	1.20		0.79		0.68	**	0.63	**	0.63	**
30–34	1.33		0.68		0.59	**	0.50	***	0.48	***
35–44	0.26	*	0.12	***	0.09	***	0.07	***	0.07	***

Table 3: (Continued)

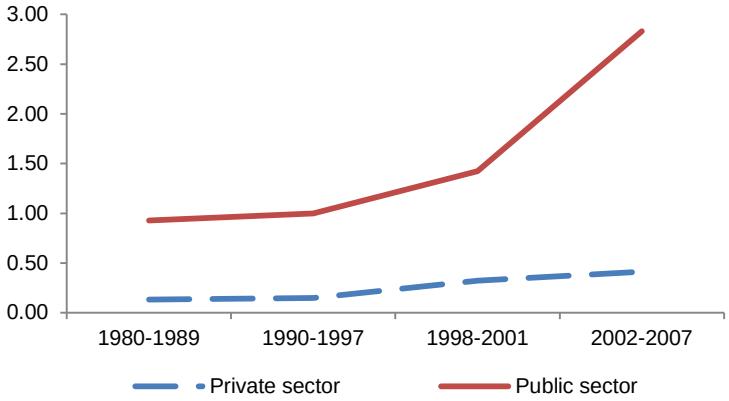
	Model 1 OR		Model 2 OR		Model 3 OR		Model 4 OR		Model 5 OR	
Woman's education										
Low	1		1		1		1		1	
Middle	0.85		0.65		0.52	**	0.52	**	0.56	*
High	2.92	***	2.38	***	1.45		1.08		1.16	
Work experience										
≤2 years			1		1		1		1	
2< years≤5			1.60	**	1.35		1.07		1.08	
>5 years			3.61	***	3.05	***	2.22	***	2.24	***
Occupational status										
Low			1		1		1		1	
Middle			1.42		1.17		1.04		1.04	
High			2.12	***	1.58		1.28		1.24	
Workplace										
Private					1		1		1	
Public					6.27	***	5.86	***	5.89	***
Missing					0.77		0.98		0.97	
Income										
Low							1		1	
Middle							1.76	*	1.84	*
High							9.07	***	9.42	***
Missing							2.64	***	2.81	***
Husband's education										
Low									1	
Middle									0.86	
High									0.90	
Husband's employment										
Wage earner-Low									1	
Wage earner-Middle									0.94	
Wage earner-High									1.28	
Non-wage earner & missing									1.36	
Non-employed									1.21	
Constant	0.15		0.08		0.11		0.05		0.04	
Log likelihood	-870.82		-840.65		-762.96		-697.32		-694.94	

Note: ***p<.01; ** .01<p<.05; * .05<p<.10.
Source: KLIPS, author's own calculations.

To disentangle how women's post-birth job continuity varies over time I run interaction models between calendar periods and other covariates, with all other factors standardized. The results show that since the 1980s women with a high educational level, long work experience, high income, high occupation prestige, and employment in the public sector have been forerunners in immediate labor market return. The probability of women with favorable labor market assets making an immediate return has continued to increase. Resuming employment quickly has been their strategy to ensure career development. This holds true for both the financial crisis period and the period when economic growth resumed.

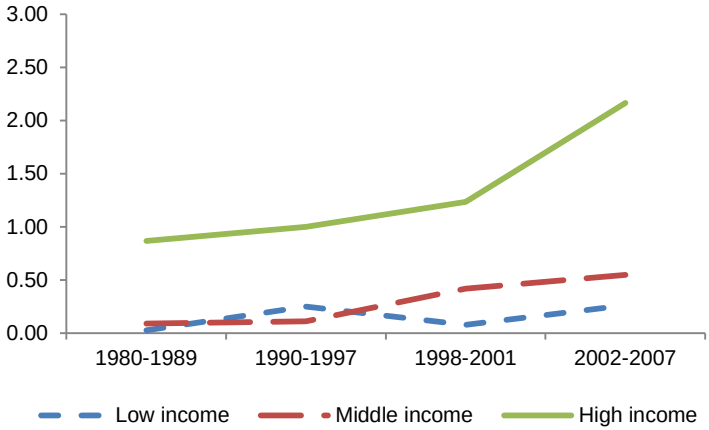
Some interactions reveal striking changes after 2001. Figures 4-5 show that the increase in immediate job return for employees in the public sector or those with high income was slow and steady from 1980 to 2001 and very strong thereafter. Considering that women with a well-established career, such as public employees, were the potential beneficiaries of the 2001 maternity leave reform, the increase in immediate return after 2001 may imply that their eligibility for the job-protected (but brief) leave may have stimulated them to resume work quickly when the leave period expired. Other factors such as women's increasingly close attachment to the labor force, their desire to keep a close connection to the labor force to reduce life uncertainty during the financial crisis period and thereafter, and more career opportunities during the economic recovery period may also be at play.

Figure 4: Odds ratio of women's immediate return to labor force after childbirth, by calendar periods and pre-birth workplace, Korea, 1980–2007 (Reference category: Public sector, 1990–1997)



Source: KLIPS, author's own calculations.

Figure 5: Odds ratio of women's immediate return to labor force after childbirth, by calendar periods and pre-birth income, Korea, 1980–2007 (Reference category: High income, 1990–1997)



Source: KLIPS, author's own calculations.

5.2 Job leavers' work-return and career prospects

5.2.1 Work return after career interruption

Table 4 presents the work-return intensity and competing risks of career outcomes of women who experienced a career break around first birth as estimated from the main effects models. The results are presented in the form of relative risks. Estimates for variables related to women's labor market characteristics mostly appear insignificant: this likely stems from the selection of job leavers into the pool of women under observation at this stage of our study. The very career-oriented women were more likely to return to the labor force immediately after childbirth, leaving a more home-oriented group at risk of returning to work after a distinct career interruption.

Estimation of the basic time factor in the return model reveals a V-shaped timing pattern of labor force return among job leavers. Job leavers return to work either as soon as possible (within 15 months after first birth) or after their first child turns three years old. The first peak may be driven by women's employment resumption after taking some maternity and parental leave. The second peak time occurs as their child approaches kindergarten age and needs less of the mother's attention. Our estimation of

the "pre-birth absence" variable shows that the less time a woman has been away from the labor force before childbirth, the more likely she is to resume employment.

Table 4: Relative risks of job leavers' work return and career prospects, Korea, 1980-2007

	Return		Career prospects					
			Lateral		Upward		Downward	
	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z
Time since first birth (t-v)								
1m≤ timeout≤15m	2.29	***	3.83	***	1.83	*	1.12	
15m<timeout≤36m	1		1		1		1	
36m<timeout≤ 60m	1.57	***	1.28		1.16		2.07	***
>60m	1.79	***	1.89	**	1.17		2.09	***
Pre-birth absence								
<=3 months	1		1		1		1	
4-12 months	0.55	***	0.25	***	1.04		1.03	
>=13 months	0.43	***	0.26	***	0.73		0.68	*
Calendar years (t-v)								
1980-1989	0.44	***	0.54	***	0.41	***	0.29	***
1990-1997	1		1		1		1	
1998-2001	2.59	***	1.44	*	2.61	***	4.86	***
2002-2007	2.09	***	1.40	*	0.90		4.47	***
Woman's age (t-v)								
15-24	0.92		0.84		1.14		0.79	
25-29	1		1		1		1	
30-34	0.94		0.81		1.22		0.96	
35-44	0.75	*	0.59	*	0.84		0.82	
Parity progression (t-v)								
1 child	1		1		1		1	
2 children	0.93		0.79		1.30		0.88	
3+ children	0.72		0.67		0.29		0.86	

Table 4: (Continued)

	Return		Career prospects					
			Lateral		Upward		Downward	
	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z
Woman's education								
Low	1.31		1.24		1.04		1.68	*
Middle	1		1		1		1	
High	0.94		1.01		1.79	**	0.75	
Work experience								
≤2 years	1.04		0.93		1.25		1.15	
2< years≤5	1		1		1		1	
>5years	0.92		0.91		1.07		0.91	
Occupational status								
Low	0.96		1.36		2.60	***	0.19	***
Middle	1		1		1		1	
High	0.99		0.63	**	0.31	***	1.75	***
Workplace								
Private	1		1		1		1	
Public	0.94		1.02		1.16		0.83	
Missing	3.73	***	3.28	***	4.14	***	5.03	***
Income								
Low	1		1		1		1	
Middle	1.11		1.32		1.08		1.02	
High	1.15		1.50	*	1.15		0.92	
Missing	0.86		1.05		1.53		0.48	***
Husband's education (t-v)								
Low	0.94		0.79		0.81		1.29	
Middle	1		1		1		1	
High	0.94		1.05		0.98		0.83	

Table 4: (Continued)

	Return		Career prospects					
			Lateral		Upward		Downward	
	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z	Haz. Ratio	P>z
Husband's employment (t-v)								
Wage earner-Low	1.25	*	1.52	*	0.86		1.28	
Wage earner-Middle	1		1		1		1	
Wage earner-High	1.04		1.42		0.94		0.86	
Non-wage earner & missing	1.62	***	1.51	*	1.13		2.06	***
Non-employed	0.93		1.06		0.62		1.00	
Constant	0.00		0.00		0.00		0.00	
No. of subjects	1403							
No. of returns	562		214		117		231	
Time at risk	100856							
LR chi2(30)	365.83		229.79		132.47		260.74	

Note: ***p<.01; ** .01<p<.05; * .05<p<.10.
Source: KLIPS, author's own calculations.

The estimation of the calendar year variable reveals that job leavers' labor force return intensity is closely associated with the business cycle. During Korea's economic boom period (1980-1997) job leavers' labor force return intensity visibly increased. However, the return intensity became especially pronounced during the financial crisis of 1998-2001. When Korea's economy recovered during the period 2002-2007 women's return intensity leveled off and declined somewhat, but was still considerably higher than before the financial crisis. It seems that the crisis had given mothers staying at home an urgent signal: try to get a job. In other words, the financial crisis boosted mothers' labor force return.It is worth noting that job leavers' work return rate did not return to the level of the pre-crisis period during 2002-2007 when the crisis was over,.

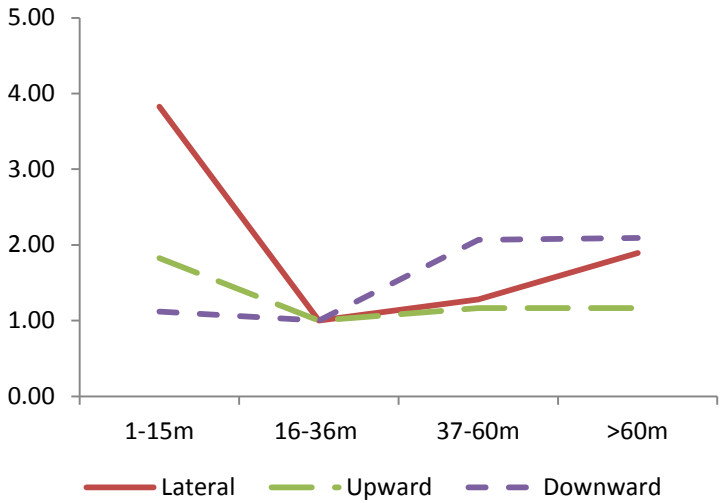
Estimations for other variables show that having additional children depresses mothers' labor force return intensity. It also reveals that many job leavers had their second and even third child during the same time-out period after becoming a mother. Though there is no significant relationship between women's human capital accumulation and their work return after a time out, their husband's economic status seems to matter. A woman has a substantially higher likelihood of returning to work if

her husband works as a non-wage earner (mainly working for family businesses or in agriculture), or when the employed husband's earning power is low.

5.2.2 Job leavers' career prospects upon work return

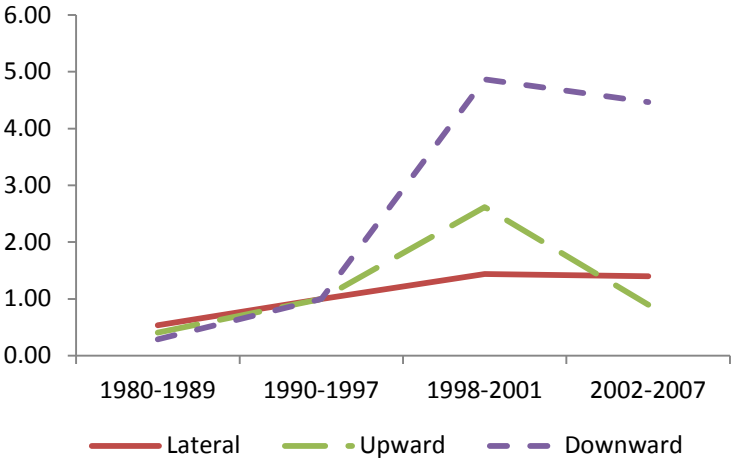
Estimations from the main effects models on job leavers' career prospects are presented in the last three columns of Table 4. Estimates for the basic time factor demonstrate how job leavers' career prospects vary by the length of time out after first birth when all other covariates are controlled for (see also Figure 6). Clearly, labor force return within 15 months after childbirth significantly enhances a woman's chance of resuming her pre-birth job or a job of similar status. Returning to work within 15 months also increases the propensity of getting a job of higher occupational level, while a time out longer than 15 months dramatically reduces these chances. At three years after childbirth the probability is highest for a downward occupational move.

Figure 6: Career opportunities upon return of job leavers by time since first birth, standardized for all other covariates (separate model for each transition, risks relative to those at 16–36 months after first birth), Korea, 1980–2007



Source: KLIPS, author's own calculations.

Figure 7: Career opportunities upon return of job leavers by calendar periods, standardized for all other covariates (separate model for each transition, risks relative to those of 1990–1997), Korea, 1980–2007



Source: KLIPS, author's own calculations.

Estimation for calendar years reveals that women overwhelmingly took jobs of lower occupational status during the economic downturn period (see also Figure 7). Even after Korea recovered from the financial crisis this striking pattern of downward occupational moves persisted. The development of resuming a previous or similar job is not as striking. It has been slowly on the rise. Upward occupational moves seem to have been somewhat more common during the recession period, but returned to previous levels when the financial crisis was over.

These results can be understood from various perspectives, among which two can be pointed out. First, in unstable economic conditions women were so desperate to get a paid job that they did not care about the job's occupational prestige. Any paid job during such a critical time meant that the family was less exposed to the risk of social insecurity. Second, the overall labor market restructuring after the crisis led to a shrinkage of regular employment positions and a relative expansion of irregular or temporary jobs, which increased women's chance of taking a job of lower occupational status.

Table 5: Summary of main results on women's labor force return after childbirth and career prospects, 1980-2007, Korea

Main variable	Immediate returners	Job leavers	
	Immediate return without career interruption	Return after career interruption	Career prospects after interruption
Calendar years			
Pre-crisis period 1980-1997	Slow increase	Slow increase	
Crisis period 1998-2001	Elevated	Strikingly elevated	Strikingly elevated downward moves
Post-crisis period 2002-2007	Striking increase	Slightly declined but considerably higher than during the pre-crisis period	Slightly declined but still elevated downward moves

6. Conclusions

This study enriches our understanding of women's labor force return after childbirth by providing the first insight into patterns in Korean women's labor market return and its linkages to economic trends. I designed a three-stage analysis: of Korean women's job continuity after childbirth without career interruption, of patterns in labor force return after any career interruption, and of career prospects upon return to work before, during, and after the Asian financial crisis. Table 5 summarizes the main findings.

The results from the immediate return model (first stage analysis) show an upward trend of women's immediate return without career interruption from the 1980s to the late 1990s. During the crisis period (1998-2001) when the labor market was restructured and the risk of being laid off was high, new mothers held onto their role in the labor force more strongly than before by resuming employment immediately. When the economy recovered, instead of resuming the pre-crisis low return pattern, women's immediate work return rates kept increasing.

Estimations of the job leaver's return model (second stage analysis) demonstrate that the labor market return of mothers who experienced employment interruption was also closely related to the business cycle. Their labor force return rate increased slowly during the economic boom period from 1980 to the late 1990s. However, the economic

downturn during 1998–2001 changed the return pattern markedly: it encouraged mothers staying at home to re-enter the labor market more swiftly. When the crisis was over these women's return rates declined somewhat but still remained at a significantly higher level than before the crisis.

The career prospects (third stage analysis) of women who experienced employment interruptions are diverse. During the pre-crisis period when economic conditions were stable, women had lower likelihood of retaining any job compared to later periods. During the crisis period and the period of economic recovery they overwhelmingly took jobs of lower occupational status.

These are remarkable results, as they provide clear empirical evidence that economic swings were closely related to women's post-birth work return behavior as well as their career prospects. This is in line with the findings of Pettit and Hook (2005), who document that an unstable economic environment often propels married women and women with children to take up work. Findings for the Korean context demonstrate that the economic crisis spurred rather than deterred women's work return behavior after childbirth. Further, the patterns that emerged during the crisis period remained when the crisis was over. The crisis thus seems to have acted as a catalyst in triggering new social behaviors.

During the economic boom period up to the late 1990s, women's job return after childbirth (either with or without a career interruption) was relatively weak, albeit the return trends were slightly increasing. During this period families followed the conservative pattern of previous generations: women with children stayed at home, providing care and doing household chores, and men worked outside the home, providing financial support for the household. However, the outbreak of the Asian financial crisis disrupted this balance, and triggered a noticeable change in women's post-birth labor market return behavior. The economic volatility, which put the main breadwinner of the household at high risk of financial deprivation, introduced a feeling of insecurity into society. It pushed women to hold onto their role in the labor force more strongly than before. First-time mothers, especially those with good labor market standing, became more likely to resume their pre-birth employment immediately after childbirth. Mothers staying at home became strikingly more active labor-force entrants, though the jobs they could get were overwhelmingly of lower status. To get a job at all mattered more than its status. Furthermore, women did not resume their pre-crisis return behavior when the economy recovered.

Apart from the pushing effect of the financial crisis on women's post-birth labor force return, it is argued that the implementation of job-protected maternity leave in 2001 propelled the rapid work return of eligible women. Further, the relative increase of temporary and irregular job positions due to overall labor market restructuring during the crisis and post-crisis period may have stimulated the re-employment intensity of

women who had withdrawn from the labor market at childbirth. Finally, increasing working opportunities during the most recent economic recovery and increasingly positive societal attitudes toward maternal employment may have supported these developments.

Some findings of this study are similar to those for other settings. For example, women's human capital characteristics, which are very important indicators of women's post-birth job continuity in western societies, proved to be strong indicators in Korea as well. Women with high educational attainment and strong labor market standing are much more likely to resume employment immediately after childbirth without experiencing career interruption. The important role of job-protected maternity leave in encouraging eligible women to return to work after childbirth is observed in Korea, as has been the case in several other contexts. The deterrent effect of having additional children on women's employment resumption also resembles other findings. Finally, the close connection between the length of time out and subsequent career opportunities resembles findings for other settings. A longer career interruption reduces women's lateral and upward occupational moves, but increases their chance of experiencing downward occupational moves.

Some findings are typical for East Asian societies. For example, the increased work return of job leavers after the first child is three years old and over reflects the typical life trajectory of many Korean women, leaving jobs for family care and only resuming jobs, especially irregular jobs, when their children need less care. This pattern resembles findings for the Japanese context (Yu 2002; Raymo and Lim 2010).

The findings of this study highlight the crucial role of Korea's family policies in reconciling women's work and family life. The striking gap between the immediate-return levels of public and private sector employees and between high- and low-income earners after the 2001 maternity/parental leave reform reflects the fact that the policy is biased towards women with good labor market standing. The current study calls for further policy reform so that more women can access job-guaranteed maternity leave and reconcile their work and family responsibilities more easily.

This study also has implications for reproductive behavior. Korea has entered the "lowest-low" fertility era. Prolonged schooling, delayed labor market entry, and delay in and decline of family formation have been argued to be important factors contributing to the fertility decline (Kye 2008b, Choe and Retherford 2009, Ma 2013). Previous research has shown that, once married, women with a high educational level and well-established career are more likely to enter motherhood than others (Kye 2008b, Ma 2013). From a different perspective, this study proves that mothers with favorable labor market assets have a higher likelihood of returning to the labor force without career interruption. Findings on these different dimensions suggest that employment and motherhood are not necessarily mutually exclusive careers for women

with a good labor market standing. The career penalty for proceeding to motherhood for women with a well-established career may even be smaller than for others. This is partly because they are better protected by the welfare system, and partly because they have better resources for combining work and motherhood. The study offers no insight into whether such a positive employment-fertility relationship may prevail in higher-order childbearing. Future research needs to address whether women's labor force participation after childbirth increases or hinders their likelihood of proceeding to have additional children.

We need to be aware that the results of this study should be interpreted with some caution. First, our data did not provide information on whether and when women took maternity leave around childbirth. Women's self-reported employment history (with records of the beginning and ending of each job) was the only source that we could rely on to detect whether women experienced career interruption around childbirth. Second, this study only captured a woman's first-time labor force return after becoming a mother. Future research may consider applying multi-process modelling to consider additional periods of women's labor market and family transitions. Further, since 2008 childcare services in Korea have been further expanded and parental leave benefits have increased. Meanwhile, Korea has experienced another wave of economic disturbance. Both these developments call for additional research on the topics covered, based on more recent data on Korea.

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Appendix 1: Description of excluded and included cases for the analyses of women's labor market return after childbearing in Korea

Number of women who experienced childbearing	4150	
Number of women with pre-birth work experience	2748	
Number of women included in analysis	1790	
Reasons for exclusion:	Excluded	Remaining
		2748
Working as non-wage earners before first birth	332	2416
Less than three months' work experience before childbearing	35	2381
Unavailable husband's information and first birth during singlehood	178	2203
Missing information on women's pre- and post-birth occupation	306	1897
Returning to the labor market before 1980	107	1790

Appendix 2: Korean Standard Classification of Occupations (KSCO) and corresponding Socioeconomic Index (SEI) scores based on Ganzeboom and Treiman (1996)

KSCO	SEI score
1. Managers	55
2. Professionals and related workers	70
3. Clerks	45
4. Service workers	40
5. Sales workers	40
6. Skilled agricultural, forestry and fishery workers	23
7. Craft and related trades workers	34
8. Equipment, machine operating and assembly workers	31
9. Elementary workers	20

Appendix 3: Descriptive statistics of variables for return and career prospect models of job leavers (Hazard)

	Return		Lateral		Upward		Downward	
	Person-months	Returns	Person-months	Returns	Person-months	Returns	Person-months	Returns
Time since first birth (t-v)								
1m≤ timeout≤15m	13418	128	13418	79	13418	24	13418	25
15m<timeout≤36m	23448	89	23448	32	23448	22	23448	35
36m<timeout≤ 60m	23023	126	23023	34	23023	26	23023	66
>60m	40967	219	40967	69	40967	45	40967	105
Pre-birth absence								
<=3 months	9296	107	9296	64	9296	12	9296	31
4-12 months	34829	206	34829	58	34829	50	34829	98
>=13 months	56731	249	56731	92	56731	55	56731	102
Calendar years (t-v)								
1980-1989	22887	62	22887	35	22887	16	22887	11
1990-1997	35208	170	35208	75	35208	45	35208	50
1998-2001	18252	138	18252	39	18252	31	18252	68
2002-2007	24509	192	24509	65	24509	25	24509	102
Woman's age (t-v)								
15-24	6029	41	6029	21	6029	11	6029	9
25-29	38409	223	38409	100	38409	44	38409	79
30-34	40908	231	40908	74	40908	51	40908	106
35-44	15510	67	15510	19	15510	11	15510	37
Parity progression (t-v)								
1 child	45562	266	45562	128	45562	50	45562	88
2 children	51159	279	51159	81	51159	66	51159	132
3+ children	4135	17	4135	5	4135	1	4135	11
Woman's education								
Low	14600	74	14600	33	14600	22	14600	19
Middle	60878	329	60878	120	60878	66	60878	143
High	25378	159	25378	61	25378	29	25378	69
Work experience								
≤2 years	17809	96	17809	31	17809	21	17809	44
2< years≤5	45011	246	45011	97	45011	48	45011	101
>5years	38036	220	38036	86	38036	48	38036	86

Appendix 3: (Continued)

	Return		Lateral		Upward		Downward	
	Person-months	Returns	Person-months	Returns	Person-months	Returns	Person-months	Returns
Occupational status								
Low	18754	98	18754	47	18754	41	18754	10
Middle	65580	367	65580	139	65580	69	65580	159
High	16522	97	16522	28	16522	7	16522	62
Workplace								
Private	59746	250	59746	87	59746	39	59746	124
Public	9244	28	9244	11	9244	5	9244	12
Missing	31866	284	31866	116	31866	73	31866	95
Income								
Low	35003	155	35003	44	35003	26	35003	85
Middle	26631	132	26631	52	26631	20	26631	60
High	12415	64	12415	31	12415	10	12415	23
Missing	26807	211	26807	87	26807	61	26807	63
Husband's education (t-v)								
Low	11893	60	11893	23	11893	16	11893	21
Middle	46205	269	46205	100	46205	59	46205	110
High	42758	233	42758	91	42758	42	42758	100
Husband's employment (t-v)								
Wage earner-Low	22452	150	22452	62	22452	29	22452	59
Wage earner-Middle	21310	103	21310	34	21310	27	21310	42
Wage earner-High	20474	91	20474	39	20474	18	20474	34
Non-wage earner & missing	23321	156	23321	53	23321	32	23321	71
Non-employed	13299	62	13299	26	13299	11	13299	25
Total	100856	562	100856	214	100856	117	100856	231