

## *Provisional draft*

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# **Effects of the Economic Crisis on Fertility: A Comparison between South Korea and Italy**

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## **Abstract**

Over the past decades, economic downturns have affected fertility dynamics. Many scholars have shown that fertility levels have decreased in response to the crises in several countries, both in Asian societies and in European ones. The main purpose of this study is to perform a comparative analysis between South Korea and Italy on the effects of the economic crises, started respectively in 1997 and 2007, on the levels and patterns of fertility. The interest in comparing these two countries is that they are both characterized by a “tight family system” but very low fertility levels. The datasets used come from *The 2006 Korean National Fertility, Family Health and Welfare Survey* and from *The 2012 Italian Multipurpose Survey on Aspects of Everyday Life*. Our sample focuses on women aged 20-49 currently married at the time of the survey. We carried out analyses to summarize the distinctive patterns in the socioeconomic characteristics of the observed groups of women in Italy and South Korea. We also applied regression analyses to assess the changing effect of socioeconomic status on fertility. Our findings confirm that the economic crisis affected the causal mechanisms of fertility significantly both in South Korea and in Italy. Changes in reproductive behavior have been most evident among women characterized by a high level of fertility and among those who received junior high school education or lower. As the level of wife’s education rises, the number of children ever born after the crisis tends to increase. This pattern is found to be consistent when the husband’s occupation was introduced into the analysis.

**Key words:** Economic crisis, Fertility decline, Socioeconomic differentials in fertility, Ultra-low fertility, Comparative analysis

## **1. Introduction**

Economic and financial crises and labour market insecurity have affected fertility dynamics over the past decades. Research on economic recessions in the past shows that fertility levels tend to decline in response to economic downturns (Sobotka et al., 2011). A poorly performing economy with high unemployment makes many young people delay or avoid marriage and childbearing.

The aim of this paper is to compare the effect on fertility of two ten-year-lagged crises from two very distant territorial contexts: the Asian economic crisis that occurred at the end of the 20th century and the most recent economic downturn that started in 2007 and is presently still affecting many European countries.

Among Asian countries, Korea witnessed a drastic decline in the level of fertility after the 1997 Asian economic crisis. Similar phenomena of rapid fertility decline have also been observed in

Japan, Singapore and Taiwan (Kim, 2009). A similar pattern has recently been observed in several European countries, even if the economic crisis has not affected the changes in fertility of all countries evenly (Goldstein et al., 2013). In Greece, for example, an increase of TFR at the beginning of the new millennium was followed by a sharp decrease in the same indicator right after the 2007 European financial crisis. In the Italian economic recession, TFR seems to have responded less sensitively than in other countries (Kertzer et al., 2009).

This study conducts a comparative analysis between South Korea and Italy on the effects of the two economic crises, started respectively in 1997 and 2007, on the levels and patterns of fertility. We will also address the extent of the fertility impact of the economic recession among the different socioeconomic groups (Kim, 2006; Kertzer et al., 2009; Rondinelli et al., 2010; Sobotka et al., 2011). It is expected that this comparative analysis will strengthen our understanding of trends in the fertility level and of socioeconomic differentials before and after the economic crisis. Attention is given also to the aim to construct a theoretical model of differential fertility.

Using data from *The 2006 Korean National Fertility, Family Health and Welfare Survey* and from *The 2012 Italian Multipurpose Survey on Aspects of Everyday Life*, this study focuses on a comparative analysis of children ever born (CEB) and the post-crisis CEB of married women.

The interest in comparing South Korea and Italy is that they are both characterized by a “tight family system” but very low fertility levels (Gabrielli and Choe, 2008). Until now, the two distant countries have been characterized by low levels of illegitimate births, divorces, and non-marital childbearing rates. The traditional family system in South Korea is based on Confucian ideals: marriage is expected, and strictly separate gender roles are practiced within marriage (Choe, 2006). In addition, strong generational ties are very important in family relations (Kim, 2005). Similar to South Korea, Italy has been included among those European Catholic countries that have a strong family system in which “traditionally the family group has had priority over the individual” (Reher, 1998). Obviously, the common elements outlined above do not exhaust the description of the two contexts as they are so distant and complex (not considering, for example, the significant differences between Northern and Southern Italy) and cannot be generalized to the universe of existing families. Nevertheless, interesting common elements come out in the study of fertility patterns and reproductive behaviors in relation to the economic crisis in which both countries have been involved, though in different historical periods.

## **2. The Asian and European Economic Crises and Their Effects on Fertility**

The 1997 Asian economic crisis has exerted a profound impact on family behaviors. Countries in East and South-East Asia have experienced a marked postponement and decline in marriage, which has accounted for a large portion of their fertility decline in recent decades (Jones, 2007). In Japan, for example, the link between economic recession and postponement of marriage has been well-documented (Retherford, Ogawa, and Matsukura, 2001) as well as the effect of rising unemployment among young males contributing significantly to the TFR decline in 2000-2004.

In South Korea, the high unemployment due to increased insecurity in the labor market and the expansion of poverty after the 1997 crisis have influenced the timing and magnitude of marriage and childbearing. The singulate mean age at marriage (SMAM) of women rose from 25.5 in 1996 to 28.7 in 2009. South Korea witnessed rapid downward trends in the number of marriages and the crude marriage rate, which declined after a peak of 434,911 and 9.4 per thousand, respectively, in 1996 to a minimum level. The counterpart figures were estimated to be 309,759 and 6.2 per thousand, respectively in 2009. In contrast, family dissolution has increased as a result of financial difficulty after the crisis in 1997. The number of divorces was estimated at 166,617 in 2003, up from 79,895 in 1996. At this time, a rapid increase in the crude divorce rate from 1.7 to 3.4 per thousand also occurred (Statistics Korea, 2014).

Post-crisis, postponement of childbearing also became a clear trend in South Korea. The mean age at first birth rose from 26.9 in 1997 to 29.8 in 2009. At second birth, the mean age also rose concurrently from 29.1 to 31.8. A marked downward trend has also been noted in the fertility rate for the prime reproductive age group. The fertility rate for women aged 25-29 dropped 8.9 percent in the years immediately post-crisis, and 50.1 percent during the period 1997-2009 (Statistics Korea, 2014).

Figure 1 shows a marked downward trend in the total fertility rate (TFR) since 1981. TFR in South Korea dropped from 2.57 births per woman in 1981 to a replacement level of 2.1 by 1983. Despite slight upturns in 2000, 2006, and 2007, this fertility transition has become even clearer after the 1997 economic crisis. However, these minor upturns were largely due to an anomaly in the data resulting from the beliefs of many of South Koreans on the auspiciousness of these birth years being the best in the Asian Zodiac cycle of the lunar calendar. In 2005, TFR was estimated at 1.08, the lowest rate ever recorded. More dramatically, the pace of TFR decline outpaced even Japan (United Nations, 2011).

<Figure 1 about here>

Since 2007, the financial crisis and the subsequent economic recession spread from the United States of America to almost the entire world. The need to rescue financial institutions ruined the public finances of many European countries. The costs of the bank bailouts added to a negative economic downturn that has reduced the employment rate and income in all countries. A wealth of research both at the aggregate and the individual level contributes to our understanding of the diverse channels through which recession affects demographic behavior (Goldstein et al., 2009; Kertzer et al., 2009; Sobotka et al., 2011; Kreyenfeld et al., 2012). However, this evidence cannot be readily translated into conclusions on the likely consequences of the recession on fertility.

Unlike previous recessions and economic upheavals, the current recession is hitting Europe after a period during which the age at childbearing had continuously increased. Furthermore, the financial crisis hit Europe when many countries had just started to see modest increases in their period fertility rates (Goldstein et al., 2009). In Greece, for example, an increase in the total fertility rate that had begun at the turn of the century came to a halt in 2009 when the Greek economy entered a crisis. A similar reversal in positive fertility trends occurred in Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Romania and Spain. Most remarkable is the case of Latvia: following a sharp increase in unemployment, fertility rates plummeted from 1.6 in 2008 to only 1.3 in 2011. Meanwhile, the neighboring country of Lithuania, where unemployment increased at a similar pace, did not experience any strong reaction in annual birth rates over the same period.

In a recent paper, Goldstein et al. (2013) suggested that first births, in particular, are most strongly affected by increasing aggregate unemployment rates. This impact is particularly hard for Southern European countries because of their unstable job entry patterns, further exacerbating the problems young people face in this region (International Labor Organization, 2012).

There is no doubt that Italy, after an initial period of relative stability thanks to quite a protected banking system and a huge family savings reserve, is now among the European countries most affected by the strong reduction of income mainly due to a steadily growing unemployment rate. Nevertheless, the TFR has also not yet reacted to the surge in unemployment thus far (Figure 1). However, there are many signs of a possible negative impact of the economic downturn on family formation in Italy. The number of total births has been decreasing continuously since the beginning of the crisis, from 576,659 in 2008 to 534,186 in 2012 and the total fertility rate would decline if not sustained by foreign women (ISTAT, 2012a). Moreover, the number of marriages that showed some signs of recovery around the year 2004, sharply declined again after 2008 passing from 246,613 to 207,138 in 2012; the crude marriage rate declined from 41.1 per 1000 inhabitants in 2008 to 3.5 in 2012 with a slight increase in the singulate mean age at marriage of women (around 33 years of age). The years to come will be crucial in order to follow the trend in demographic

behaviors in the context of a persistent economic downturn. A comparison with the Korean case—that has been observed for a longer period—would help in interpreting this relationship and the impact of the crisis among different socioeconomic groups.

### 3. Theoretical Background and Hypotheses

Interest in the effect of socioeconomic status on fertility is not recent. Grounded in concepts of demand and factors such as the cost and benefit of children, from the late 1950s, income, education and other indicators of socioeconomic status have been considered as the most important determinants of fertility at both the micro and macro level. Many economists have analysed demand for children based on family income from a microeconomic perspective, and have contributed to our understanding of differential fertility (see, among the others, Becker, 1960; Leibenstein, 1975; Easterlin, 1975). It was also argued that education directly contributes to fertility reduction by shaping attitudes, values and beliefs toward a smaller family (see, among the others, Cochrane, 1979). After reviewing differential fertility in Western countries, Wrong (1958) argued that three different types of relation between socioeconomic status and fertility represent different stages in the process of transition from an inverse pattern. The negative and linear pattern of the relationship yields first to a reverse *J*-shaped curve, which is later succeeded by a *U*-shaped pattern and, lastly, by a positive relation. In addition, a cubic relationship between socioeconomic status and fertility has been observed, suggesting that the range of the fertility curve is dependent on the socioeconomic status of a specific country (Kim, 1987).

More recently, observing South Korean fertility levels before and after the economic crisis, Kim (2007, 2009, 2013) demonstrated (see the blue curve of children ever born in Figure 2(a)) that, before the crisis, as socioeconomic status (represented by high family income, education of the wife or occupational prestige of the husband) rises, opportunity cost and desire for relative goods that have negative effects on demand for children also increase; in addition, the economic utility of children as a source of income and as a source of security after the parents' retirement declines as socioeconomic status rises. Without being constrained by these factors, however, a couple in the highest socioeconomic group can afford to have more children, and demand for children increases again as socioeconomic status rises above a certain point.

<Figure 2 about here>

Kim (2007, 2009, 2013) has also argued that, after the economic crisis, the model hypothesizing the relationship between socioeconomic status and fertility should be changed (see the red curve in Figure 2(b)). It is postulated that the reverse *J*-shaped pattern of the relationship between socioeconomic status and fertility was succeeded by a slightly positive relationship. For the highest socioeconomic group, however, the relationship is likely to become a slightly negative one: fertility is likely to decline slightly as socioeconomic status rises above a certain point. Moreover, it is assumed that a decrease in CEB is most drastic among those in the low socioeconomic group with a high level of fertility but relatively slow for those with a low level of fertility. A remarkable increase in unemployment, layoffs, and part-time and temporary jobs has played a decisive role in delaying marriage and widening the birth interval, particularly among those with low socioeconomic status. Increasing inequality has also led those in the highest socioeconomic group to be exposed to and spend more status-related and status-differentiating expenditures (which compete with children for the couple's income), thus reducing their fertility. As a result, level of fertility is likely to be highest among those with upper-middle socioeconomic status, followed by those with the highest socioeconomic status, and finally those with the lowest status.

Based on the approach mentioned in the theoretical background, we aim to test whether the following three hypotheses, already verified for the South Korean case (Kim, 2007, 2009, 2013),

also fit the Italian one. The first hypothesis is drawn from the old model shown in Figure 2(a), and the next two hypotheses are from the new model shown in Figure 2(b).

- 1) Those with low and middle socioeconomic status are likely to have fewer CEB as socioeconomic status rises. For the highest socioeconomic group, CEB is likely to rise slightly as socioeconomic status rises.
- 2) In an ultra-low fertility context, the relationship between socioeconomic status and level of recent fertility is slightly positive. For the highest socioeconomic group, the level of recent fertility is likely to decrease slightly as socioeconomic status rises.
- 3) Decrease in fertility after the economic crisis has been most drastic among those with the highest level of fertility but relatively slow for those with a lowest level of fertility.

#### **4. Data and Methods**

Starting from Kim (2009, 2013), this study focuses on a comparative analysis of South Korea and Italy. The main data sets used come from *The 2006 Korean National Fertility, Family Health and Welfare Survey* (KIHASA, 2006) and from *The 2012 Italian Multipurpose Survey on Aspects of Everyday Life* (ISTAT, 2012b). Our sample focuses on women aged 25-44 currently married at the time of the survey.

The observed South Korean sample focuses on 4,739 women and is divided into two groups. The first group contains 2,829 women who married before 1997 or who remarried regardless of their timing of marriage. The second group includes 1,910 women who married for the first time in 1997 or thereafter. The Italian sample includes 3,085 women and is divided into two groups as well. The first one encompass 2,441 women who married before 2007 or who remarried regardless of their timing of marriage; the second one consists of 644 women who married for the first time in 2007 or thereafter.

The number of CEB and the post-crisis CEB are estimated in both countries in order to analyze recent changes in the level of fertility. Patterns of socioeconomic differentials in CEB for these two groups are also compared. It is postulated that the patterns of socioeconomic differentials in CEB and the post-crisis CEB will not be similar if the economic crisis significantly affected the causal mechanisms of fertility.

We conducted descriptive analyses in order to summarize the distinctive socioeconomic characteristics (such as the education and occupation of the wife and husband) of the two observed groups of women in South Korea and Italy. In addition, we conducted multivariate regression analyses to assess the effect of each determinant independently of the others and to verify the hypothesis cited above.

#### **5. The Observed South Korean and Italian Populations**

The basic demographic profiles of the observed South Korean and Italian populations are presented in Table 1. With regard to the South Korean population, the mean CEB for the entire sample is estimated at 1.8. Dividing the observed women into two subgroups, the figures for those married before 1997 or remarried (Group A) is 2.0, and for those married for the first time in 1997 or thereafter (Group B) is 1.3. The mean post-crisis CEB for the entire sample is 0.8, and 0.4 and 1.3 for Group A and Group B, respectively.

<Table 1 about here>

The Italian population analyzed shows that the differences in the mean CEB values between the different observed groups are similar to the South Korean one. In fact, the CEB levels are 1.6 for

the entire sample, and 1.7 and 0.8 for Group A and Group B, respectively. The values of the mean post-crisis CEB are lower than the South Korean ones, being equal to 0.4 for the entire sample, to 0.3 for Group A and 0.6 for Group B.

The mean age of South Korean husbands and wives in Group A is higher than in Group B of 8.0 and 7.3 years, respectively. In contrast, the husbands and wives in Group B turn out to have gotten married at older ages (29.7 and 27.0, respectively) compared to their counterparts in Group A (respectively at 27.6 and 24.3 years) of 2.1 and 2.7 years.

The age of Italian husbands and wives in Group A is higher than in Group B of 6.2 and 5.5 years, respectively. With reference to the age of husband and wife at marriage, the differences between the two groups of Italians are more evident than for the South Koreans: those in Group A married at a younger age (28.5 years of age for husbands and 24.7 for wives) than those in Group B (32.7 and 29.6 years of age, respectively). The delay is of 4.2 years for men and of 4.9 years for women.

The two Korean groups show differing characteristics. Kim (2013) summarized these differences as follows. Group B is relatively younger than Group A with a level of educational attainment that is much greater. College education was attained for about 55.6 percent of wives and 64.4 percent of husbands in Group B. Junior high school education or lower characterized only 1.1 percent of wives and 0.9 percent of husbands. These were much lower than the 8.4 percent and 7.1 percent achieved for Group A.

The distribution of the Korean husband's occupations in the two groups also correlated with educational attainment. The largest occupational subgroup in Group A was craft workers (31.6 percent), followed by service workers (19.6 percent) and professionals (18.4 percent). The occupational pattern was markedly different in Group B. The occupational groups with the greatest membership were professionals (27.3 percent), craft workers (24.2 percent), service workers (19.6 percent), and clerical workers (18.0 percent). The proportion of wives not currently employed at the time of the survey was 44.9 percent for Group A and 62.4 percent for Group B, while service workers constituted the largest group of working wives at 22.5 percent for Group A. The proportion (15.6 percent) of professionals was found to be the greatest in Group B.

Also, among the Italian sample, the level of education of persons in Group B is higher than those in Group A, presumably due to the older age of the latter. In fact, 41.3 percent of wives and 42.6 percent of husbands in Group B have college education. As far as other educational levels are concerned, 25.2 percent of wives and 31.0 percent of husbands have junior high school education or lower (primary school at 2.8 and 2.7, respectively). The percentages corresponding to the interviewees with a low educational level in Group A (39.1 for wives and 45.4 percent for husbands, with primary education of 4.3 and 5.5 percent, respectively) are higher than the counterpart figures of Group B.

Observing Italian husbands' occupation, in Group A, unskilled workers are the most numerous group, with 35.8 percent, followed by clerks (20.5 percent) and skilled workers (15.4 percent). The professional distribution of men in Group B shows that the largest occupational groups are clerks (27.5 percent), unskilled workers (27.3 percent) and skilled workers (20.4 percent). The occupational characteristics of Italian women are quite different from those of men, and this heterogeneity is a common factor with the observed South Korean population. The proportions of wives who do not work are 48.0 percent for Group A and 42.3 percent for Group B. Among the women with a job, clerks constitute the largest group (25.5 percent) in the Group A population; the same category reaches 31.8 percent of wives in Group B.

## **6. Distinctive Patterns of CEB and the Post-crisis CEB in South Korea and in Italy**

### *Descriptive analysis*

In this study, it was postulated that the economic crises affected the causal mechanisms of fertility a great deal, and thus the pattern of socioeconomic differentials in fertility after the Asian

and the European recessions are expected to be significantly different from those at pre-crisis times. In other words, the patterns of socioeconomic differentials in CEB and the post-crisis CEB are unlikely to be similar to each other.

It is clear in Figure 3 that CEB and the post-crisis CEB according to wife's education reveal contrasting patterns, both in South Korea and in Italy. As wife's education reaches a certain level, CEB tends to decline in the two observed countries. Though the difference turns out to be very small, for South Korea, college graduates reveal higher CEB than those in the next group in the hierarchy. The decline of CEB as educational attainment rises is evident also for Italy, even if college graduates do not show the highest levels as an analogous group of South Korean women.

<Figures 3 and 4 about here>

The post-crisis CEB according to wife's education shows a contrasting pattern with respect to CEB in both the considered countries. With reference to South Korea, as the level of a wife's education rises, the amount of children ever born after the crisis increases. However, college graduated women are more likely to have slightly less children than the next group in the hierarchy. The same pattern is evident, although with less evidence, for Italy where the lower fertility of graduate women does not occur. To strengthen the above findings we conducted an analysis of differential fertility according to husband's education, As shown in Figure 4, the pattern for both countries is found to be consistent with the results relative to women.

Generally speaking and despite the existing differences between the two countries, the contrasting trends in CEB and the post-crisis CEB is notable. This pattern implies that, after the recession, fertility decline has been most remarkable among less educated couples, and relatively moderate for the most educated. The pace of fertility decline during the past decade has been negatively associated with the level of fertility. Thus, both South Korea's and Italy's descent to ultra-low fertility can mostly be attributed to the drastic reduction of fertility among the less educated couples.

We also conducted an analysis of differential fertility by comparing CEB and post-crisis CEB according to the occupations of the wife and husband. The results are shown in Figures 5 and 6, assuming that the sequence of the occupational categories reflects prestige hierarchy with the highest score on the right end. However, the figures for Italy and Korea are separated due to the different classifications of occupations used in the two national surveys. Generally speaking, the pattern of differential fertility according to occupational prestige is consistent with the one in Figures 3 and 4. South Korean results in Figure 5 demonstrate that the mean CEB for husbands with agricultural occupations and simple labor jobs are the highest, while husbands with clerical jobs shows the lowest CEB. As occupational prestige goes up, CEB shows a declining pattern, while professionals and senior managers with the highest prestige show a significantly higher mean CEB than those with the less prestigious group of occupations. As shown in Figure 6, the Italian trend is very similar to the South Korean one, despite the impossibility of classifying the occupations in groups similar to those formed for South Korea. In fact, as the couple's occupation becomes more prestigious, the mean CEB tends to decrease, showing the lowest level for clerical professions. However, husbands with professional jobs and couples with senior managerial jobs reveal higher CEB than those with less prestigious groups.

<Figures 5 and 6 about here>

For both the considered countries, the pattern of the post-crisis CEB according to occupational prestige contrasts remarkably with that of CEB. As the level of occupational prestige increases, the post-crisis CEB increases. However, in South Korea, senior managers with the highest occupational prestige are found to have fewer children than those with the next prestigious jobs. This is also confirmed in Figure 6 where Italian managers with the highest prestige tend to have fewer children

than those of the next group in the hierarchy. Both in South Korea and in Italy, analysis of the recent trends in fertility according to occupational prestige reveals a similar pattern to the ones according to the couple's educational attainment. After the Asian and the European economic crises, fertility decline has been most evident among groups with the highest level of fertility but relatively moderate among those with lower fertility. Results of the analyses also confirm that the decline has been more substantial for those with the highest occupational prestige than those with the next prestigious group of occupations.

### *Regression analysis*

To double-check the South Korean and Italian data supporting the above mentioned arguments on the pattern of socioeconomic differentials in fertility, we performed a series of regression analyses. Focussing on the effects of educational attainment of women on fertility, we introduced linear and quadratic terms of education years of wife into the regression model. This was done to examine the nonlinear relationships between the independent and dependent variables.<sup>1</sup> One of the advantages of this transformation is that the collinearity between the linear and quadratic terms is substantially reduced, while the correlation coefficients with the other variables are not affected by this transformation.<sup>2</sup> The results are shown in Table 2.

<Table 2 about here>

For both countries, Model 1 and Model 3 on children ever born yield a significantly negative coefficient for the linear term of wife's education. Though it is statistically significant only for Italy, the quadratic term of wife's education turns out to be positive. The signs of the regression coefficients for these terms support the pattern of CEB hypothesized by Kim (2009, 2013) and previously postulated (see theoretical background of this paper).

Model 2 on post-crisis CEB shows for South Korea that the positive regression coefficient for the linear term and the negative regression coefficient for the quadratic term of wife's education are statistically significant, and support the nonlinear pattern of the post-CEB postulated by Kim (2009, 2013) and summarized in the theoretical section of this paper. With reference to the linear term of wife's education level, as shown in Model 2 and Model 4, the Italian case is similar to the South Korean one, which shows a positive regression coefficient. In contrast to the Korean Model, however, the quadratic term in Model 4 shows a positive regression coefficient, though not statistically significant. This result implies that the pattern of the post-crisis CEB among Italian women is quite positively linear and is slightly different from the South Korean one.

## **7. Concluding remarks**

The aim of our article has been to analyze and compare the socioeconomic differentials of recent South Korean and Italian fertility. Following the results previously reached by Kim (2007, 2009, 2013) for South Korea, we tested the hypothesized new pattern of socioeconomic differentials in the Italian case that presents similar levels of ultra-low fertility and that was also involved in the profound economic crisis that started in 2007.

The investigation was grounded on two reflections. The first one concerns the importance of analyzing the changing pattern of relationships between socioeconomic status and fertility. Moreover, in order to investigate the influence of the Asian and of the European economic crises on

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<sup>1</sup> From an operative point of view, the variable of wife's years of education was standardized in such a way that the resulting mean was zero and the resulting standard deviation was one. Then, the quadratic term was created by taking the squared value of the standardized variable.

<sup>2</sup> For detailed discussion of this technique of transformation and its applications, see Kim (1987: 154-159).



the level of fertility and on the pattern of socioeconomic differentials respectively in South Korea and in Italy, we present a comparative analysis of CEB and the post-crisis CEB of married women in the two countries. For South Korea, we compared the level of fertility as well as the pattern of socioeconomic differentials for women married before 1997 and for women married for the first time in 1997 or thereafter, while for Italy the two compared groups are formed by those married before 2007, and by those married for the first time in 2008 or thereafter.

The second reflection pertains to the need to build theoretical frameworks of differential fertility based on new patterns of empirical findings in contexts of ultra-low fertility and recent economic crises. In fact, on the basis of the existing theoretical and empirical literature, we propose several hypotheses concerning fertility patterns and their differentials, testing them on two observed distant countries.

The obtained findings show that the economic crisis affected the causal mechanisms of fertility significantly both in South Korean and in Italy. In particular, our results demonstrate that changes in reproductive behavior after the economic crisis have been most evident among the women characterized by a high level of fertility and among those who received junior high school education or lower. As the level of wife's education rises, the number of children ever born after the crisis tends to increase. It should also be noted that, particularly in South Korea, the fertility level of those with the highest education declined more sensitively than those in the next group in the social hierarchy. This pattern was confirmed by also observing husband's occupation as an indicator of socioeconomic status.

Such results can be interpreted as follows: both in South Korea and in Italy, the poor economic conditions and serious job market insecurity due to the economic crisis have led couples with low socioeconomic status to reduce their family size more than couples with higher socioeconomic status.

As far as future research on these topics is concerned, one possible direction of theoretical development is to test our hypotheses on other countries that have experienced a similar economic crisis in different geographic, cultural and economic contexts. This aim could offer further insights into the pattern of socioeconomic differentials in fertility.

The empirical findings of this paper offer other interesting threads for future research. In fact, if the pattern of socioeconomic differentials in fertility undergo changes in the future among the countries characterized by ultra-low fertility and by the consequence of economic crises, there will be a need to describe and understand new reproductive behaviors. Therefore, this article can be considered an attempt to highlight the significance of this issue and to provide guidance for future scholarly endeavors.

Lastly, with reference to population policies, we have to recall that both in South Korea and in Italy the presence of a gap between the achieved and the desired fertility have been found (Kim, 2013; De Rose et al., 2008). This unexpressed fertility can be an important additional basis to policy makers for focusing on pro-natal programs. Deeper research on recent changes in fertility could offer a base of knowledge to enhance the effectiveness of boosting fertility. In particular, the identification of selected groups of population that show a wider gap between achieved and desired fertility can facilitate the planning and implementation of policy measures aimed to narrow this gap.

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**Table 1**  
**Demographic Profiles of the Study Population**

	Currently married (aged 25-44)					
	(Group A) Married before crisis		(Group B) First married during or after crisis		Total	
	S. Korea (2,829)	Italy (2,441)	S. Korea (1,910)	Italy (644)	S. Korea (4,739)	Italy (3,085)
CEB	2.0	1.7	1.3	0.8	1.8	1.6
Post-crisis CEB	0.4	0.3	1.3	0.6	0.8	0.4
Husband's age	42.9	42.2	34.9	36.0	39.7	40.9
Wife's age	39.6	38.4	32.3	32.9	36.7	37.2
Husband's age at marriage	27.6	28.5	29.7	32.7	28.5	29.4
Wife's age at marriage	24.3	24.7	27.0	29.6	25.4	25.7

Source: KIHASA (2006); ISTAT (2012b).

**Table 2**  
**Regression Analysis to Examine the Nonlinear Relationship between Wife's Education and Fertility**

	South Korea		Italy	
	Dependent variable		Dependent variable	
	(Model 1) CEB	(Model 2) Post-1997 CEB	(Model 3) CEB	(Model 4) Post-2008 CEB
	b/beta	b/beta	b/beta	b/beta
Education_yr_wife_std	(-)**	(+)**	(-)**	(+)**
Education_yr_wife_std_sq	(+)	(-)**	(+)*	(+)
F ratio	83.59**	74.28**	63.99**	29.15**
Number of cases	4,733	4,733	3,085	3,085

Notes: 1) Considering that this analysis was conducted to examine the shape of the curvilinear relationship between the independent and the dependent variables, and that the independent variables were measured in a standardized form, this table only presents signs rather than the real numbers of the regression coefficients.

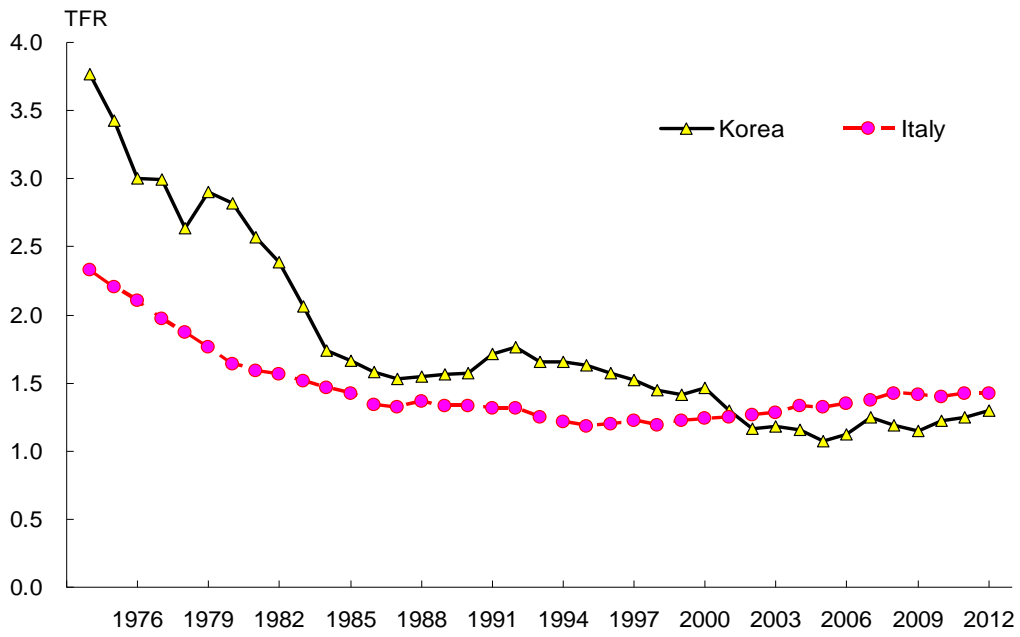
2) (Education\_yr\_wife\_std) is a standardized variable of education years of wife.

(Education\_yr\_wife\_std\_sq) is a squared variable of (Education\_yr\_wife\_std).

3) \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ .

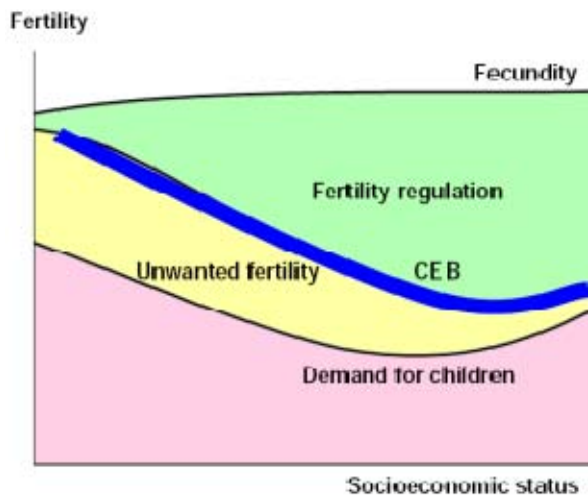
Source: KIHASA (2006); ISTAT (2012b).

**Figure 1**  
**Trends in TFR in South Korea and Italy, 1974-2012**

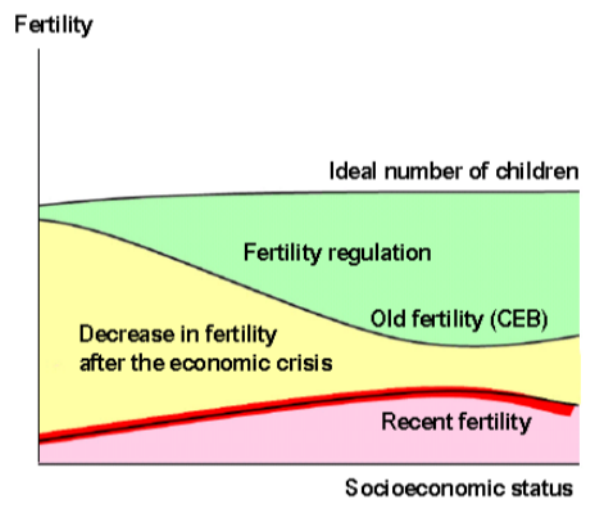


Source: Statistics Korea (2014); ISTAT (2012a).

**Figure 2**  
**Hypothesized Relationship between Socioeconomic Status and Fertility**



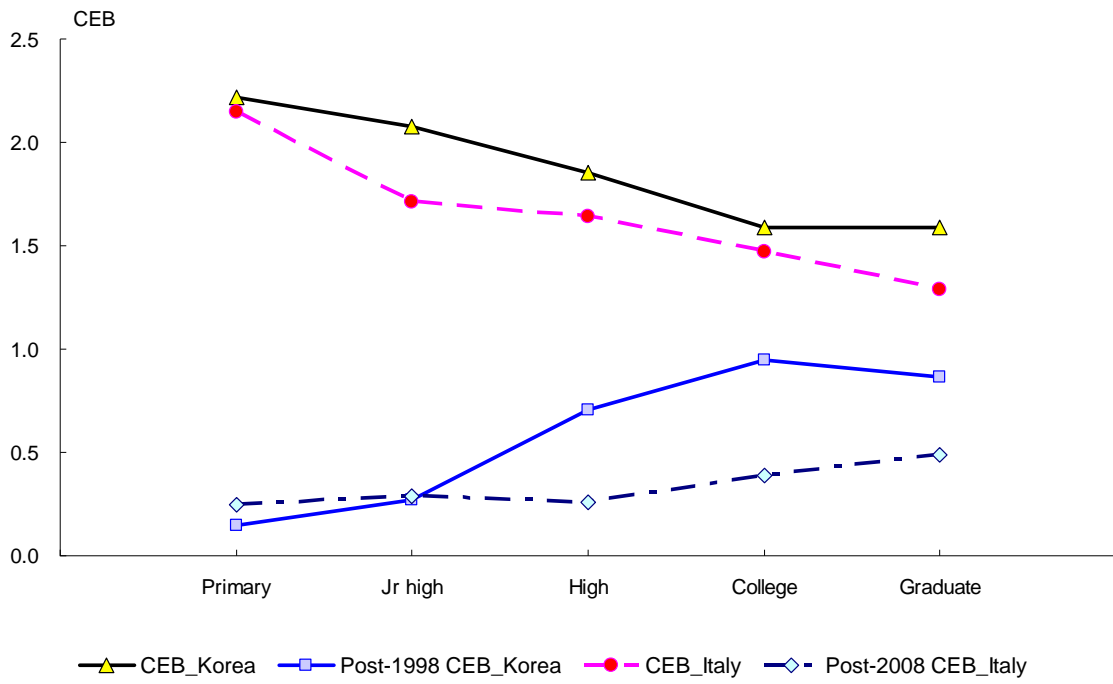
(a) The Old Model



(b) A New Model for Ultra-Low Fertility Contexts

Source: Kim (2013).

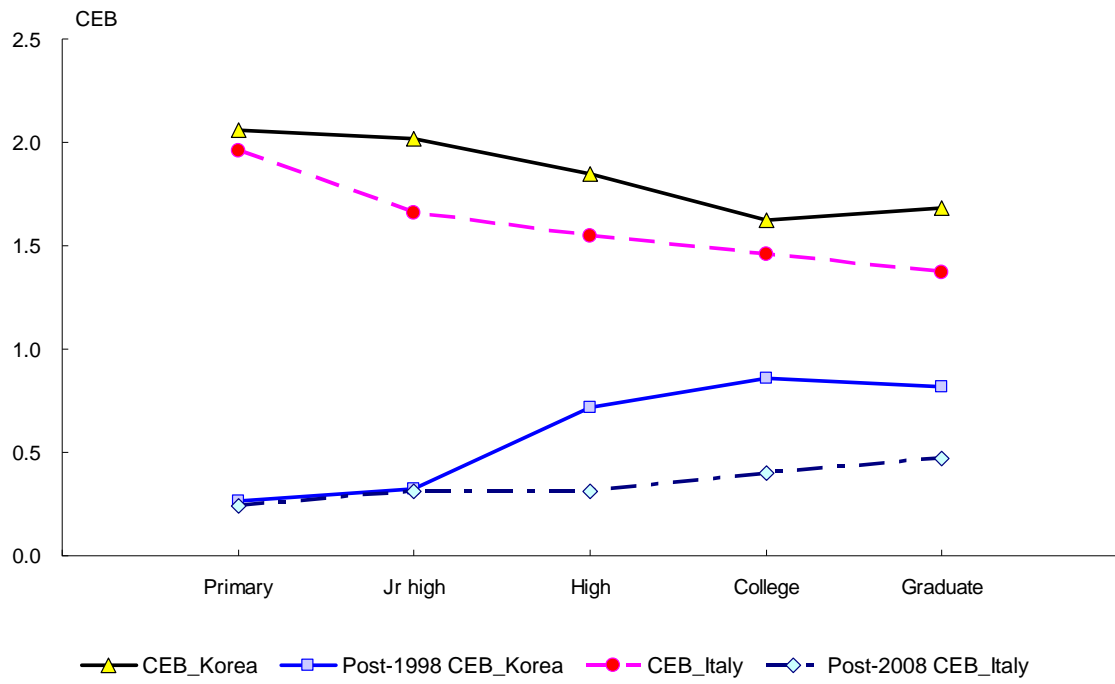
**Figure 3**  
**CEB and Post-crisis CEB by Educational Attainment of Wife, South Korea and Italy**



Source: KIHASA (2006); ISTAT (2012b).

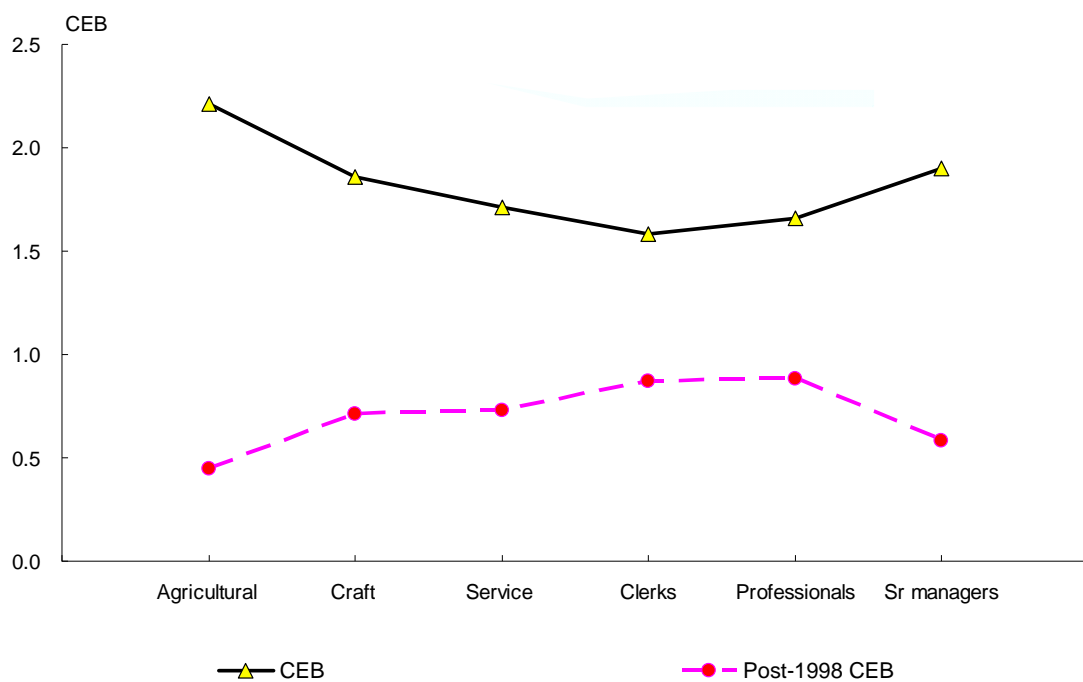


**Figure 4**  
**CEB and Post-crisis CEB by Educational Attainment of Husband, South Korea and Italy**



Source: KIHASA (2006); ISTAT (2012b).

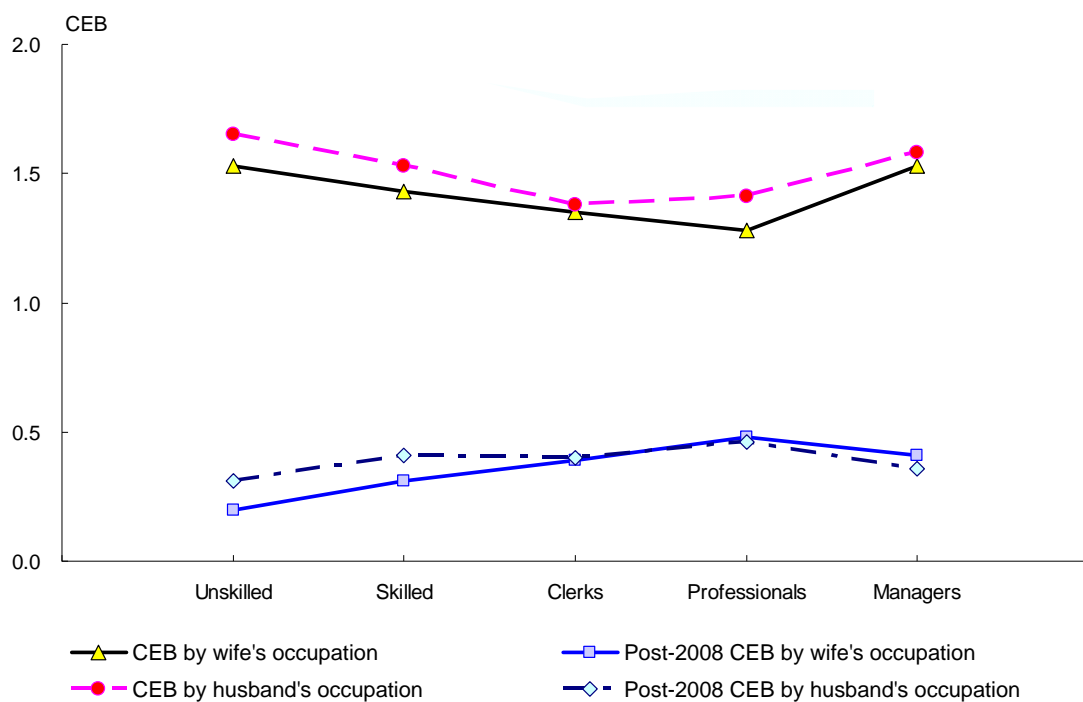
**Figure 5**  
**CEB and Post-1998 CEB by Occupation of Husband, South Korea**



Note: Information on the occupation of wife is not available from KIHASA (2006) in a comparable manner, and thus only the pattern of differential fertility according to occupation of husband is presented in this graph.

Source: KIHASA (2006).

**Figure 6**  
**CEB and Post-2008 CEB by Occupations of Wife and Husband, Italy**



Source: ISTAT (2012b).