

VOLUME LXIX – N. 2

APRILE-GIUGNO 2015

**RIVISTA ITALIANA  
DI ECONOMIA DEMOGRAFIA  
E STATISTICA**

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*Sede Legale*

C/O Studio Associato Cadoni, Via Ravenna n.34 – 00161 ROMA

sieds.new@gmail.com

rivista.sieds@gmail.com

Volume pubblicato con il contributo della  
*Fondazione della Cassa Di Risparmio di Fermo*



## INDICE

Stefania Maria Lorenza Rimoldi <i>Famiglie in crisi, famiglie nella crisi</i> .....	17
Silvana Salvini <i>Living in couple. marriage and cohabitation in a changing Italy</i> .....	37
Luca Bartoli, Velia Bartoli <i>Una valutazione dell'impatto della recente immigrazione straniera sull'ammontare e la struttura della popolazione italiana</i> .....	59
Tania Cappadozzi, Laura Cialdea, Manuela Michelini, Daniele. Spizzichino <i>Come cambia la divisione dei ruoli nella famiglia: fattori strutturali e comportamentali</i> .....	69
Luca Di Sciullo, Roberta Saladino <i>Immigrazione e imprenditoria in Calabria</i> .....	81
Thaís García-Pereiro, Roberta Pace <i>Un'indagine sul livello d'integrazione degli immigrati in Puglia</i> .....	93
Romina Fraboni, Eleonora Meli <i>Do consensual unions differ from marriages? A study of family characteristics and received helps in Italy</i> .....	105
Federico Benassi, Davide Fardelli, Fabio Lipizzi <i>I profili demografici di alcune grandi città italiane. Un'analisi micro territoriale</i> .....	117
Patrizia Giannantoni and Salvatore Strozza <i>Foreigners' contribution to the evolution of fertility in Italy: a re- examination on the decade 2001-2011</i> .....	129
Pietro Iaquina, Aldo Carabellese <i>Having children in the twenty-first century</i> .....	141
Carlo Cusatelli, Massimiliano Giacalone <i>Analisi statistica del cybercrime in Italia</i> .....	153

Patrizia Giannantoni and Giuseppe Gabrielli <i>Fertility of immigrant women in Italy: outcomes from unconventional data .....</i>	165
Salvatore Strozza <i>A re-examination of net migration in European countries in the period 2002-2011: estimates by gender, age and region of birth.....</i>	177
Michela C. Pellicani, Antonella Rotondo, Roberto A. Palumbo, Evelina Mero <i>II generazione di stranieri e accesso al mercato del lavoro .....</i>	189
Daniela Ghio, Silvia Venturi, Odo Barsotti <i>Comunicazione in famiglia e processi di integrazione.....</i>	201
Barbara Zagaglia, Gabriele Morettini <i>Exploratory analysis of the fertility of foreign women in the municipalities of the Marche.....</i>	211
Doo-Sub Kim, Alessandra De Rose, Giuseppe Gabrielli, Anna Paterno <i>Effects of the economic crisis on fertility: a comparison between South Korea and Italy.....</i>	223
Valentina Talucci, Paola Ungaro <i>Spunti di analisi per lo studio della relazione tra popolazione e ambiente .....</i>	235

## **EFFECTS OF THE ECONOMIC CRISIS ON FERTILITY: A COMPARISON BETWEEN SOUTH KOREA AND ITALY**

Doo-Sub Kim, Alessandra De Rose, Giuseppe Gabrielli, Anna Paterno

### **1. Introduction**

Economic and financial crises and labour market insecurity have affected fertility dynamics over the past decades. Research shows that fertility levels tend to decline in response to economic downturns (Sobotka et al., 2011).

We aim to compare the effect on fertility of two ten-year-lagged crises from two very distant territorial contexts: the Asian economic crisis that started in 1997 and the recent economic downturn that started in 2007. We will also address the extent of the fertility impact of the recession among the different socioeconomic groups (Kim, 2007; Kertzer et al., 2009). Attention is given also to the aim to construct a theoretical model of differential fertility.

The interest in comparing South Korea and Italy is that they are both characterized by a “tight family system” but very low fertility levels, as well as by low levels of illegitimate births, divorces, and non-marital childbearing rates (Gabrielli, Choe, 2008). The traditional family system in South Korea is based on Confucian ideals. In addition, strong generational ties are very important in family relations (Kim, 2005). Italy is a Catholic countries that have a strong family system in which “the family group has had priority over the individual” (Reher, 1998).

### **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 (Kim, 2009). 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 South Korea, the high unemployment due to increased insecurity in the labor market and the expansion of poverty after the crisis have influenced the timing and magnitude of marriage and childbearing. The singulate mean age at marriage of women rose from 25.5 in 1996 to 28.7 in 2009; the number of marriages and the crude marriage

rate, declined after a peak of 434,911 and 9.4 per thousand, respectively, in 1996 to 309,759 and 6.2 per thousand in 2009. The mean age at first birth rose from 26.9 in 1997 to 29.8 in 2009. The fertility rate for women aged 25-29 dropped 8.9% in the years immediately post-crisis, and 50.1% during the period 1997-2009 (Statistics Korea, 2014). TFR in South Korea dropped from 2.57 births per woman in 1981 to a replacement level of 2.06 by 1983, and to 1.30 in 2012. Despite slight upturns in 2000, 2006, and 2007 (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), this fertility transition has become even clearer after the 1997 economic crisis. In 2005, TFR was estimated at 1.08, the lowest rate ever recorded.

Since 2007, the economic recession spread from the United States of America is hitting Europe when many countries had just started to see modest increases in their period fertility rates. Goldstein et al. (2013) suggested that first births are most strongly affected by increasing aggregate unemployment rates; this impact is particularly hard for Southern European countries further exacerbating the problems young people face in this region. Italy is among the European countries most affected by the strong reduction of income mainly due to a steadily growing unemployment rate (De Rose, Strozza, 2015). The number of total births has been decreasing continuously, from 576,659 in 2008 to 534,186 in 2012 and the TFR (equal to 1.42 in 2008 and in 2012) would decline if not sustained by foreign women (ISTAT, 2012a). The mean age of mothers at birth rose from 31,1 in 2008 to 31,4 in 2012. Moreover, the number of marriages sharply declined after 2008 passing from 246,613 to 207,138 in 2012; the crude marriage rate declined from 4.1 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). 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 (SES) on fertility is not recent. Education, income and other indicators have been considered as the most important determinants of fertility at both the micro and macro level (see, among others, Easterlin, 1975). Wrong (1958) argued that three different types of relation between SES and fertility represent different stages in the process of transition. 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. Ultimately, populations with

low fertility are characterized by the emergence of a positive relation between socioeconomic status and fertility (Wrong 1958). In addition, a cubic relationship between SES and fertility has been observed, suggesting that the range of the fertility curve is dependent on the SES 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 (CEB) in Figure 2(a)) that, before the crisis, as SES (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 declines as SES 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 SES rises above a certain point. Kim has also argued that, after the economic crisis, the model hypothesizing the relationship between SES 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 SES 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 SES 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 SES. 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 SES, followed by those with the highest SES, and finally those with the lowest status.

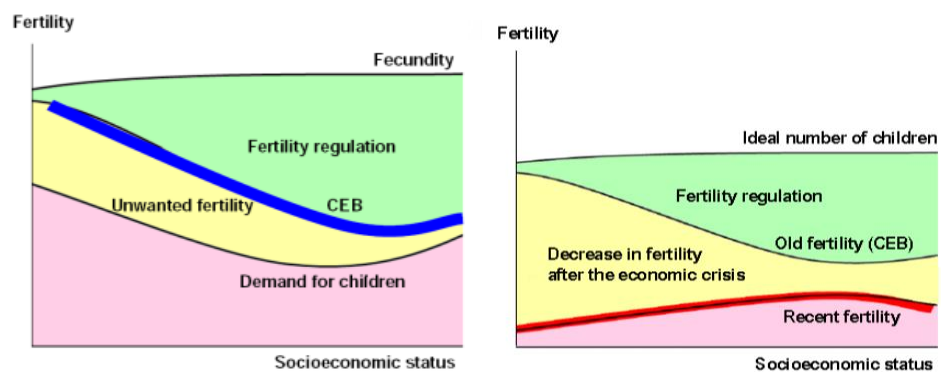
Based on the approach mentioned in the theoretical background, we aim to test whether the following three hypotheses, already verified for the South Korean case (Kim, 2007; 2009; 2013), also fit the Italian one, that is in another ultra-low fertility context. The first hypothesis is drawn from the old model shown in Figure 1(a), and the next two hypotheses are from the new model shown in Figure 1(b).

1) Those with low and middle SES are likely to have fewer CEB as SES rises. For the highest socioeconomic group, CEB is likely to rise slightly as SES rises.

2) In an ultra-low fertility context, the relationship SES and level of recent fertility is slightly positive. For the highest socioeconomic group, the level of recent fertility is likely to decrease slightly as SES rises.

3) Decrease after the recessions has been most drastic among those with the highest level of fertility but relatively slow for those with a lowest level of fertility.

**Figure 1** – *Hypothesized Relationship between Socioeconomic Status and Fertility.*



(a) *The Old Model*

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

Source: Kim (2013).

#### 4. Data and methods

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. Post-crisis CEB is estimated at the timing of a year after the beginning of the crisis: 1998 for Korea and 2008 for Italy. 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 of the two observed groups of women in South Korea and Italy. In our analyses, formal educational level was used as a proxy for socioeconomic status. In addition, we conducted regression analyses to assess the effect of SES on CEB and to verify the hypotheses 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.

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, 1.7 for those married before 2007 or remarried (Group A) and 0.8 for those married for the first time in 2007 or thereafter (Group B). 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 compared to their counterparts in Group A 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, 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% of wives and 64.4% of husbands in Group B. Junior high school education or lower characterized only 1.1% of wives and 0.9% of husbands. These were much lower than the 8.4% and 7.1% achieved for Group A. The distribution



of the Korean husband's occupations in the two groups is also correlated with educational attainment. The largest occupational subgroup in Group A was craft workers, while in Group B were professionals. The proportion of wives not employed was 44.9 percent for Group A and 62.4 percent for Group B.

**Table 1** – Demographic profile 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 at interview	42.9	42.2	34.9	36.0	39.7	40.9
Wife's age at interview	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)

Service workers constituted the largest group of working wives for Group A, while the proportion of professionals was found to be the greatest in Group B.

Among the Italian sample, the level of education of persons in Group B is higher than those in Group A. In fact, 41.3% of wives and 42.6% of husbands in Group B have college education, while 25.2% of wives and 31.0% of husbands have junior high school education or lower. The percentages corresponding to the interviewees with a low educational level in Group A (39.1 for wives and 45.4 for husbands) are higher than the counterpart figures of Group B. Also in Italy, the distribution of the husband's occupations both in the Group A and in the Group B is correlated with educational attainment.

Observing Italian husbands' occupation, in Group A, unskilled workers are the most numerous group. The professional distribution of men in Group B shows that the largest occupational groups are clerks and unskilled workers. 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, in both groups clerks constitute the largest group.

## 6. Distinctive patterns of CEB and the post-crisis CEB in South Korea and in Italy

In this study, it was postulated that 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.

Figure 2(a) shows 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 decline in both 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.

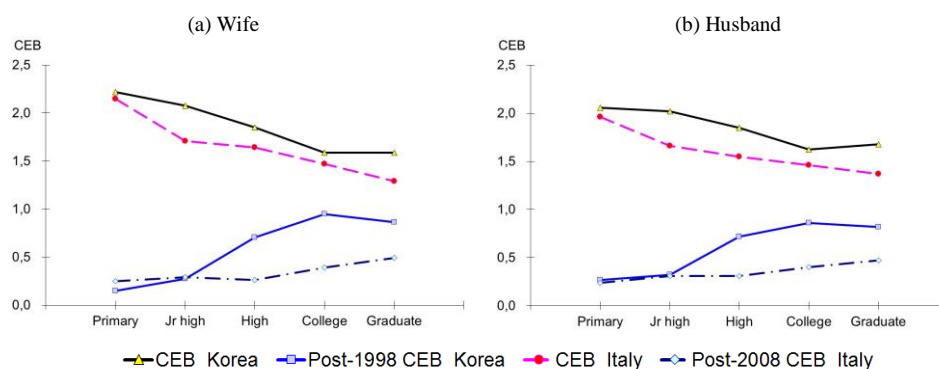
The post-crisis CEB according to wife's education shows a contrasting pattern with respect to CEB in both the countries. With reference to South Korea, as the level of a wife's education rises, the amount of CEB after the crisis increases. However, college graduated women are more likely to have slightly 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 3(b), the pattern for both countries is found to be consistent with the results relative to women.

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 women.

We also conducted an analysis of differential fertility by comparing CEB and post-crisis CEB according to the occupations of the wife and husband. Generally speaking, the results (here not showed) demonstrate that in South Korea, 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. The Italian trend is very similar to the South Korean one. In fact, as the couple's occupation becomes more prestigious, the mean CEB tends to decrease. Husbands with professional jobs and couples with senior managerial jobs reveal higher CEB than those in the less prestigious groups. 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 have fewer children than those with the next prestigious jobs. This is also confirmed for Italy, where 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.

**Figure 2** – CEB and Post-crisis CEB by Educational Attainment of Wife (a) and Husband (b), South Korea and Italy



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

After the beginning of 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 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.

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 in order to examine the nonlinear relationships between the independent and dependent variables<sup>1</sup>. The results are shown in Table 2.

For both countries, Model 1 and Model 3 on CEB 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

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

positive. The signs of the regression coefficients for these terms support the pattern of CEB hypothesized by Kim (2009; 2013) and previously postulated. 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. Model 4 shows how the Italian case is similar to the South Korean one, according to the positive regression coefficient. In contrast to the South 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.

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

	South Korea		Italy	
	Dependent variable		Dependent variable	
	(Model 1)	(Model 2)	(Model 3)	(Model 4)
	CEB	Post-1998 CEB	CEB	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 squared variable of (*Education\_yr\_wife\_std*); 3) \*:  $p < 0.05$ ; \*\*:  $p < 0.01$

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

## 7. Concluding remarks

The aim of our article has been to analyze and compare the socioeconomic differentials of recent South Korean and Italian fertility. The investigation was grounded on two reflections. The first one concerns the importance of analyzing the changing pattern of relationships between SES and fertility. Moreover, in order to investigate the influence of the Asian and of the European economic crises on the level of fertility and on the pattern of socioeconomic differentials 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. The second reflection pertains to the need to build a theoretical framework 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 countries.

The obtained findings show that the economic crisis affected the pattern of socioeconomic differentials in fertility significantly both in South Korea and in Italy. In particular, our results demonstrate that changes in reproductive behaviour 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. This pattern was confirmed by observing husband's occupation as an indicator of SES. 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 recession have led couples with low SES to reduce their family size more than couples with higher SES.

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. 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 behaviours. Therefore, this article can be considered an attempt to highlight the significance of this issue and to provide guidance for future scholarly endeavours.

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.

### **Acknowledgments**

This work was supported by a National Research Foundation of Korea Grant funded by the Korean Government (NRF-2014-2014S1A3A2043476).

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## SUMMARY

### **Effects of the economic crisis on fertility: a comparison between South Korea and Italy**

Over the past decades, economic downturns have affected fertility dynamics in several countries in Asia and in Europe. 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. A “tight family system” but very low fertility levels characterize both these two countries. 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 summarize the distinctive patterns in the socioeconomic characteristics of the observed groups of women in Italy and South Korea. We also apply regression analyses to assess the changing effect of economic status on fertility. Our findings confirm that the recession affected 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.

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Doo-Sub KIM, Hanyang University - Seoul - South Korea, [duskim@hanyang.ac.kr](mailto:duskim@hanyang.ac.kr)  
Alessandra DE ROSE, Sapienza University of Rome, [alessandra.derose@uniroma1.it](mailto:alessandra.derose@uniroma1.it)  
Giuseppe GABRIELLI, University of Naples Federico II, [giuseppe.gabrielli@unina.it](mailto:giuseppe.gabrielli@unina.it)  
Anna PATERNO, University of Bari, [anna.paterno@uniba.it](mailto:anna.paterno@uniba.it)