Age at first marriage, time to first marital birth, and pace of subsequent childbearing in Italy and Spain, with comparisons to the USA

Michael S. Rendall, Encarnacion Aracil, Alessandra DeRose, Paola DiGiulio, Antonio Parisi, and Filomena Racioppi

Short Abstract

Lowest-low fertility in Mediterranean countries has been linked to strong family institutions that may paradoxically act as barriers to family formation. Using the USA as a standard for comparison, the present study investigates for Italy and Spain the relative importance for completed fertility of (1) low rates of childbearing among never-married women, (2) late entry to marriage, (3) long intervals between marriage and first birth, and (4) slow rates of parity progression after the first birth. Birth probabilities are estimated simultaneously by age, marital status and duration since either marriage or the previous births by combining population and survey data in each country. Synthetic completed fertility measures are constructed from these birth probabilities to allow for decomposition of the relative importance of the above four types of factors in contributing to the much lower fertility of Italy and Spain than in the US.

Extended Abstract

Lowest-low fertility in the Mediterranean countries of Southern Europe has been linked to strong family institutions that may paradoxically act as barriers to family formation. Family institutions are both argued to impose greater obligations on parents to support a child for extended periods extending into adulthood and to discourage childbearing outside marriage (Bettio and Villa 1998). Such cultural factors may result in delays in beginning childbearing and reluctance to have more children after the first or second child. Interacting with these forces are economic contexts in the Mediterranean countries that make entry to the workforce and into stable employment slower than in other developed countries (Adam 1996, Adsera 2004). Together these processes can result in a series of life course stages that are slow to pass through before childbearing can begin (Baizan, Michielin and Billari 2002). Weak family policy provisions making it difficult to combine childbearing with employment continuation can further discourage childbearing, or result in limitation of family size (DeRose and Racioppi 2001; Gustaffson 2001; Saurel-Cubizolles et al 1999).

Understanding the relative roles of these multiple factors in a comparative approach is made difficult by the high level of aggregation of measures of fertility used in most cross-national studies (e.g, Gauthier and Hatzius 1997). This has lead some researchers to analyze the relationship between timing differences and eventual family size in a comparative parity progression approach (e.g., Kohler and Ortega 2002). The use of the parity progression approach has also been extended to the construction of alternative completed fertility measures based on parity and duration in that parity (Rallu and Toulemon 1994).

While such approaches are promising for developing a more life-course based understanding of the processes that generate completed family sizes, the demands they place on estimation in a national and cross-national context are high. Birth registration systems are generally insufficient in their detail to allow the construction of such indices, while survey datasets have sample sizes that are typically too small to allow for reliable estimation at such levels of disaggregation. In the present study, we use statistical methods for the combination of survey and population data to achieve the estimation of the process of completed fertility as a series of life-course stages including first marriage and full parity progression. We do this for Italy and Spain, using combinations of retrospective survey datasets for each: the 1995 Fertility and Family Studies in both countries (United Nations 2002), together with the 1998 Multipurpose Study of the Family in Italy and the 1999 Fertility Study in Spain. We combine these with age and parity-specific birth probabilities separately collated and estimated from birth registration data in the two countries (Giorgi 1993; Ortega 2005). We do similarly for the US to allow for comparison to a developed country in which fertility is relatively high (approaching replacement levels). Again, retrospective survey data (from the Survey of Income and Program Participation and National Survey of Family Growth) are combined with age- and parity-specific birth probabilities realized from compilations from the birth registration system (Schoen 2003).

The estimation method for combining the survey and population data involves an initial step of reweighting of the survey dataset to conform to the population level age- and parity birth probabilities, followed by estimation using the survey data with this set of weights. This procedure has previously been developed and applied in both economics (Hellerstein and Imbens 1999) and demography (Chaudhury, Handcock, and Rendall 2005), and results in both large efficiency gains and potential bias reduction (see also Handcock et al 2000; 2005).

The final methodological step is the construction and decomposition of a period, synthetic measure of completed fertility, analogous to the Total Fertility Rate (TFR). The alternative TFR, however, is an aggregation of birth probabilities not only by age, but also by time since the last life-course event ---- first marriage, first birth, second birth, etc. This allows for decomposition of the synthetic index to compare the effects on completed family of (1) low rates of childbearing among never-married women, (2) late entry to marriage, (3) long intervals between marriage and first birth, and (4) slow rates of parity progression after the first birth.

References

Adam, P. (1996) Mothers in an insider-outsider economy: The puzzle of Spain Journal of Population Economics 9:301-323.

Adsera, A. (2004) Changing fertility rates in developed countries: The impact of labor market institutions. Journal of Population Economics 17:17-43.

Baizan, P., F. Michielin, and F. Billari. (2002) Political Economy and Life Course Patterns: The Heterogeneity of Occupational, Family and Household Trajectories of Young Spaniards Demographic Research 6(8) www.demographic-research.org

Bettio, F., and P. Villa (1998) A Mediterranean perspective on the breakdown of the relationship between participation and fertility Cambridge Journal of Economics 22(2):137-171.

Chaudhury, S., M. S. Handcock, and M. S. Rendall (2005) "Generalised linear models incorporating population information: An empirical likelihood based approach." Center for Statistics and the Social Sciences Working Paper, University of Washington, Seattle.

DeRose, A., and F. Racioppi (2001) Explaining voluntary low fertility in Europe: A multilevel approach Genus LVII(1).

Gauthier, A. H., and J. Hatzius (1997) Family benefits and fertility: An econometric analysis Population Studies 51:295-306.

Giorgi, P. (1993) Una rilettura della fecondita del momento per ordine di nascita in Italia nel periodo 1950-1990 considerando la struttura per parita Genus 40(3-4):177-204.

Gustaffson, S. S. (2001) Optimal age of motherhood. Theoretical and empirical considerations on postponement of maternity in Europe Journal of Population Economics 14(2):225-247.

Handcock, M. S., S.M. Huovilainen, and M. S. Rendall (2000) Combining Registration-System and Survey Data to Estimate Birth Probabilities Demography.

Handcock, M. S., M. S. Rendall, and J. E. Cheadle (Forthcoming). Improved regression estimation of a multivariate relationship with population data on the bivariate relationship Sociological Methodology.

Hellerstein, J., and G.W. Imbens (1999) Imposing moment restrictions from auxiliary data by weighting Review of Economics and Statistics 81(1):1-14.

Kohler, H-P, and J. Ortega (2002) Tempo-Adjusted Period Parity Progression Measures: Assessing the Implications of Delayed Childbearing for Cohort Fertility in Sweden, the Netherlands and Spain Demographic Research 6(7) www.demographic-research.org

Ortega, J. (2005) "Age and parity specific fertility intensities calculated from date of previous birth". Paper presented at the IUSSP scientific meeting, Tours, France.

Rallu J.L. and L. Toulemon. 1994. Period fertility measures: The construction of different indices and their application to France, 1946-89 Population: an English selection 6:59-94.

Saurel-Cubizolles, M., P. Romito, V. Escribà-Agüir, N. Lelong, R. Mas Pons, and P. Ancel (1999) Returning to work after childbirth in France, Italy, and Spain European Sociological Review 15(2):179-194.

Schoen, R. 2003. "Insights from Parity Status Life Tables for the 20th Century U.S." Population Research Institute Working Paper 03-04, Penn State University.

United Nations (2002) Fertility and Family Surveys Economic Commission for Europe, Population Activities Unit, www.unece.org/ead/pau/ffs/Welcome.html