

University of Groningen

Fertility trends and its determinants in Spain and Europe

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DOI:
[10.33612/diss.237466569](https://doi.org/10.33612/diss.237466569)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2022

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Carioli, A. (2022). *Fertility trends and its determinants in Spain and Europe*. University of Groningen.
<https://doi.org/10.33612/diss.237466569>

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English summary

Europe has been registering low fertility trends well under replacement over the past decades, a matter of concern for policy makers with important socioeconomic repercussions. However, low fertility does not affect European countries homogeneously, as it is possible to identify differences between and within countries and regions that suggest a heterogeneous distribution of low and high fertility pockets. Far from being a choice, low fertility in developed countries is often the consequence of multiple challenges faced by women and couples, with country-specific features such as high unemployment, job instability, lack of childcare facilities, and high age at first birth.

Analysis of fertility at small scale mostly relies on heuristic approaches and does not employ rigorous statistical techniques that explain the factors involved in subnational fertility differences and that deal with spatial bias efficiently.

The main objective of this thesis was to gain more insight into the main trends and explanations of fertility trends in Spain and Europe, and the factors that influence childbearing decisions. The methodological approach is both micro- and macroeconometric to account for both individual choices and long-term trends. This PhD thesis has employed a multi country approach for better comparison of fertility trends, in order to retain a broader public policy relevance. The analyses included in Chapter 2, 3, 4, and 5 utilized different available census and survey data at different geographic resolution, and of advanced demographic and statistical modelling techniques. **Chapter 1** introduced the background and objectives of this dissertation. **Chapter 2** and **Chapter 3** presented the fertility at a sub-national scale, and explored the Spanish case in detail. **Chapter 2** set the basis for exploring sub-national fertility in Spain and described changes in trends over the past forty years. Using Spanish municipality data, we employed 910 territorial units that ensured spatial contiguity and constructed yearly fertility indicators derived from microcensus data, covering fertility by age, birth order, and age at childbirth. This chapter described spatial patterns of fertility and their changes over time, by means of spatial and correlogram analysis, exploring the effects of neighborhood definitions. Results confirmed the presence of spatial autocorrelation for all variables throughout the considered timeframe, both at global and local scale. The considered time frame depicts substantial changes in the distribution of low and high fertility clusters, reshaping the geographical distribution of fertility in Spain, with big metropolitan areas as leaders in high fertility, as childbearing is deeply impacted by labor market covariates. The descriptive and econometric spatial approaches adopted in this article, together with the detailed data available for this study, made it possible to appreciate the scale of fertility changes across the country, its heterogeneity across regions, and the evolution of fertility

determinants over time. **Chapter 3** explored fertility determinants employing census data and selected socio-economic covariates. This chapter investigated the socio-economic factors involved in the fertility transformation in Spain, both in terms of decreased fertility rates and increased mean age at first birth, exploring the subnational dimension through a spatial panel regression model. Results suggested that areas with higher total fertility were more likely to be characterized by features related to the social composition of the population, such as presence of migrants and married women, whereas first birth timing was influenced by women's entrance into university education as well as by economic-related measures such as activity rate, employment and sector of activity. Job stability was a common important and significant factor in determining fertility levels as well as first birth timing, stressing the negative impact that economic uncertainty held on childbearing. **Chapter 4** drew attention to individual data and examined which factors influence the gap between desired and observed fertility across European countries. Under-replacement fertility is not the expression of the desire for smaller families with fewer or no children. Indeed, desired family size ideals have remained rather stable across European countries over the past few decades around replacement level. The factors that influenced the gap between desired and observed fertility set a clear distinction between Western and Eastern European countries, as well as between childless and women at first parity. Western European countries' deterrent to fulfil women's DFS predominantly involved involuntary factors such as high age at childbearing, and union disruption. This is particularly true for first births, which are the most affected by postponement. Conversely, involuntary factors play a negligible role when women have at least one child, and the gap is mainly explained by competing preferences. For Eastern European countries, this PhD study observed that competing preferences and changes in fertility desires just prior to the survey explain a greater part of the gap than involuntary factors. **Chapter 5** investigated how attitudes towards childbearing changed after cohabitation and marriage. The chapter employed propensity score matching, which was applied to a panel data coming from a recent survey in Bulgaria to identify the effect of a specific life course transition on attitudes related to childbearing. It also controlled for observable heterogeneity and overcame problems of selection bias. We found a positive and significant causal relationship of entering into union on attitudes towards parenthood among men, whereas the causal effect was weaker and often uncertain for women. Finally, **Chapter 6** provided a summary of results and of central findings, reflections on the data and approaches used to investigate the objectives of this PhD thesis, and recommendations for future research.

This PhD study shed light on substantial differences in fertility both across and within European countries. The fertility decrease that started during the early 1990s did not affect Spain homogeneously or with the same pace, and areas of historically high fertility have shifted their status. The spatial econometrics approach was able to identify the new

areas of relatively high and low fertility and the determinants which seem to influence childbearing the most. The importance of job stability, economic activity and proximity to urban areas are now good predictors for higher fertility within a country, even in strong postponement settings such as Spain. Strong postponement of childbearing to later ages was also found to be of importance in explaining foregone fertility for Western European countries, where involuntary family limitation factors play a larger role.

A common denominator throughout this PhD thesis is the adverse effects that uncertain economic conditions, job instability and opportunities have on women's fertility. Policy makers have regarded low fertility as a temporary and reversible phenomenon throughout the years. However, the repeated and extended economic recessions of the past twenty years have put a halt on fertility recuperation in many instances and their negative effects are likely to linger if proper adjustments to policies are not implemented.