

## SPATIAL DIFFERENCES ON FERTILITY IN SPAIN – A PROVINCIAL-BASED ANALYSIS

*Fernando Gil Alonso*<sup>1</sup>; *Jordi Bayona-i-Carrasco*<sup>2</sup>; *Cristina López Villanueva*<sup>3</sup> & *Isabel Pujadas Rúbies*<sup>4</sup>

### 1. INTRODUCTION. HYPOTHESIS AND OBJECTIVES

The main goal of this paper is to analyse present fertility intensity differences within Spanish provinces, focusing on differences between province capitals and the rest of their respective provinces and on how these have recently changed. Present research follows author's previous work on the Metropolitan Region of Barcelona and Catalan municipalities. These results confirmed the consolidation of a fertility model in which the central city, in this case Barcelona, has low fertility—little more than one child per woman—, and the rest of metropolitan municipalities —outer-ring ones, that have had high intra-metropolitan inflows in particular—, have higher fertility. The major novelty is that inner-ring municipalities have also added to the trend, partly because certain groups of foreign immigrants moved into them. The rest of Catalonia showed similar results. Present research intends to extend the analysis to the rest of Spain and analyse whether similar fertility trends to those of the metropolitan area of Barcelona and Catalonia can also be observed. Other researchers did in fact find similar trends, that is to say an urban core which has lower fertility than its periphery, for other European countries. Research also intends to add complementary factors to the search of the causes of these geographical fertility differences. The comparison at provincial level provides an extra explanatory bonus as Spanish provinces are very diverse from several points of view —their demographic, migratory and urban dynamics; their demographic structure —there are zones with an ageing population and others which particularly concentrate young population—; and the number, proportion and origin of the foreigners living in them.

### 2. DATA AND METHODS

Present research uses both 1998 to 2013 births by age of the mother, and 1998 to 2014 *Padrón Continuo* (local register) official population at January the 1<sup>st</sup> of each year, to calculate Total Fertility Rates (TFR)—the mean number of children that a hypothetical cohort of women would have at the end of their reproductive life-cycle if they behaved exactly like the age-specific fertility rates for that specific year show.

### 3. RESULTS

Results indicate that far from the 669,378 births which women in Spain had in 1975, which were accompanied by a high TFR of 2.80 children per women, these last decades fertility in Spain has been extremely low. In 1982 the Total Fertility Rate was already below 2 children per women and decreased to 1.15 children per women in 1998. This would situate Spain among the “Lowest-Low fertility” countries. That year Spain only had 365,193 births. However, the year in which fewer children were born, 362,626 to be more exact, was 1996. From then, and until the beginning of the economic crisis, births and fertility figures started to recover topping at

---

<sup>1</sup> Geography Department, Faculty of Geography and History, University of Barcelona. Email: [fgil@ub.edu](mailto:fgil@ub.edu)

<sup>2</sup> Centre d'Estudis Demogràfics and Geography Department, Faculty of Geography and History, University of Barcelona. Email: [jordibayona@ub.edu](mailto:jordibayona@ub.edu)

<sup>3</sup> Sociology Department, Faculty of Economics and Business, University of Barcelona. Email: [clopez@ub.edu](mailto:clopez@ub.edu)

<sup>4</sup> Geography Department. Faculty of Geography and History, University of Barcelona. Email: [ipujadas@ub.edu](mailto:ipujadas@ub.edu)

519,779 births and a TFR of 1.46 children per women in 2008, though, from an international point of view, these figures can still be considered quite low. After 2008, fertility intensity began to decrease as a direct consequence of the economic crisis –it decreased to 1.27 children per women and 425,715 births in 2013. In fact, Spanish present Total Fertility Rate is far from the EU average (1.58 children per women) and is one of the EU lowest.

Spanish provinces have changed their geographical fertility patterns through time. Since the mid-20<sup>th</sup> Century Spanish fertility trends were divided into a relatively high fertility south and a low fertility north. However, this pattern has recently transformed into one in which fertility intensity in the northwest (Lugo, Zamora, Ourense, León, Asturias, Palencia, La Corunna...) is really low, and it is higher in the Mediterranean coast, Andalusia and in central Spain urban areas, the maximum being found in the provinces of Murcia, Girona, Lleida and Almeria. Some possible explanations to the introduction of these new spatial patterns in the last decade are the fact that northwestern provinces are mainly rural areas and that more dynamic and more populated provinces have higher numbers of foreigners. Therefore the north-south divide has changed into a northwest-southeast one.

Current TFR differences between province capitals and the rest of their provinces are shown in table 1. As it can be observed, results for the most rural and depopulated provinces are the opposite to what could be expected from the initial hypothesis (i.e. less fertility in province capitals than in the rest of the province). Therefore, Soria, Zamora, and Lugo provinces – followed by other mainly rural ones–, are those showing more fertility differences between the province capital –higher fertility–, and the rest of the province –lower fertility– (see table 1, right). Emigration from rural areas (particularly women's one) and the subsequent depopulation and ageing processes would be behind this feature.

On the opposite side, the cities of Barcelona, San Sebastian (capital of Gipuzkoa province) and Cadiz are the paradigmatic cases of our initial hypothesis, as their fertility levels are much lower than those of the rest of their province (see table 1, left), which includes suburban municipalities where many young couples have settled. It is also de case of Madrid, although fertility levels in the capital city are not as low. Among other factors, this could be explained by the size of the city of Madrid, which is much larger (more than 600 square km) and internally more diverse than other spatially smaller cities, as it includes large newly built peripheral neighbourhoods which are demographically similar to suburban towns.

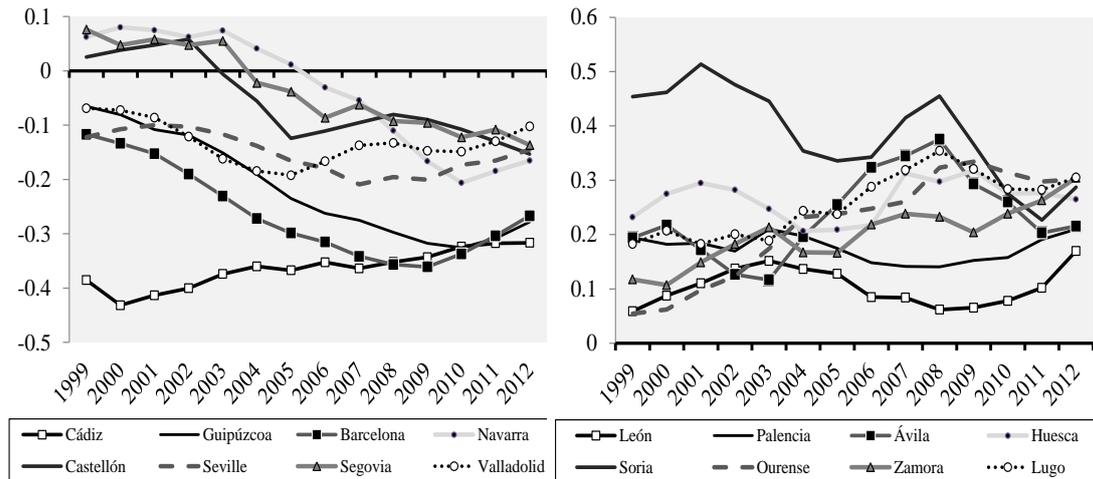
TABLE 1  
Provinces that have the highest fertility differences in favour of province capitals (right) and in favour of the rest of the province (left), Spain, 2013

	Rest of					Rest of			
	Capital	province	Total	Difference		Capital	province	Total	Difference
Cadiz	1,02	1,33	1,31	-0,32	Pontevedra	1,19	1,05	1,07	0,15
Gipuzkoa	1,13	1,38	1,34	-0,25	Burgos	1,34	1,19	1,29	0,15
Barcelona	1,13	1,36	1,31	-0,23	Ávila	1,29	1,06	1,16	0,23
Castelló	1,14	1,32	1,31	-0,18	Palencia	1,22	0,99	1,12	0,23
Segovia	1,06	1,23	1,19	-0,17	León	1,17	0,94	1,00	0,24
Navarre	1,24	1,39	1,36	-0,15	Huesca	1,52	1,27	1,36	0,25
Lleida	1,31	1,43	1,42	-0,12	Ourense	1,15	0,84	0,96	0,31
Seville	1,29	1,42	1,38	-0,12	Lugo	1,19	0,86	0,98	0,33
Araba/Álava	1,34	1,45	1,37	-0,11	Zamora	1,19	0,84	0,99	0,35
Cantabria	1,11	1,19	1,18	-0,08	Soria	1,38	1,03	1,21	0,35

Source: *Movimiento Natural de la Población* and *Padrón Continuo*, INE.

Figure 1 shows Total Fertility Rate differences from 1991 to 2013 between these two groups of provinces. Results indicate that, while in mostly rural and depopulated provinces (figure 1, right), capitals have increasingly more fertility than the rest of their province, the opposite can be observed in the other group of (more urban) provinces (figure 1, left). Differences in fertility only diminish in the two provinces which had maximum differences in 1999 (Soria 0.45 and Cadiz -0.39).

FIGURE 1  
TFR differences between province capitals and the rest of the province  
Provinces that have the highest fertility differences in favour of province capitals (right) and in favour of the rest of the province (left), 1999-2012

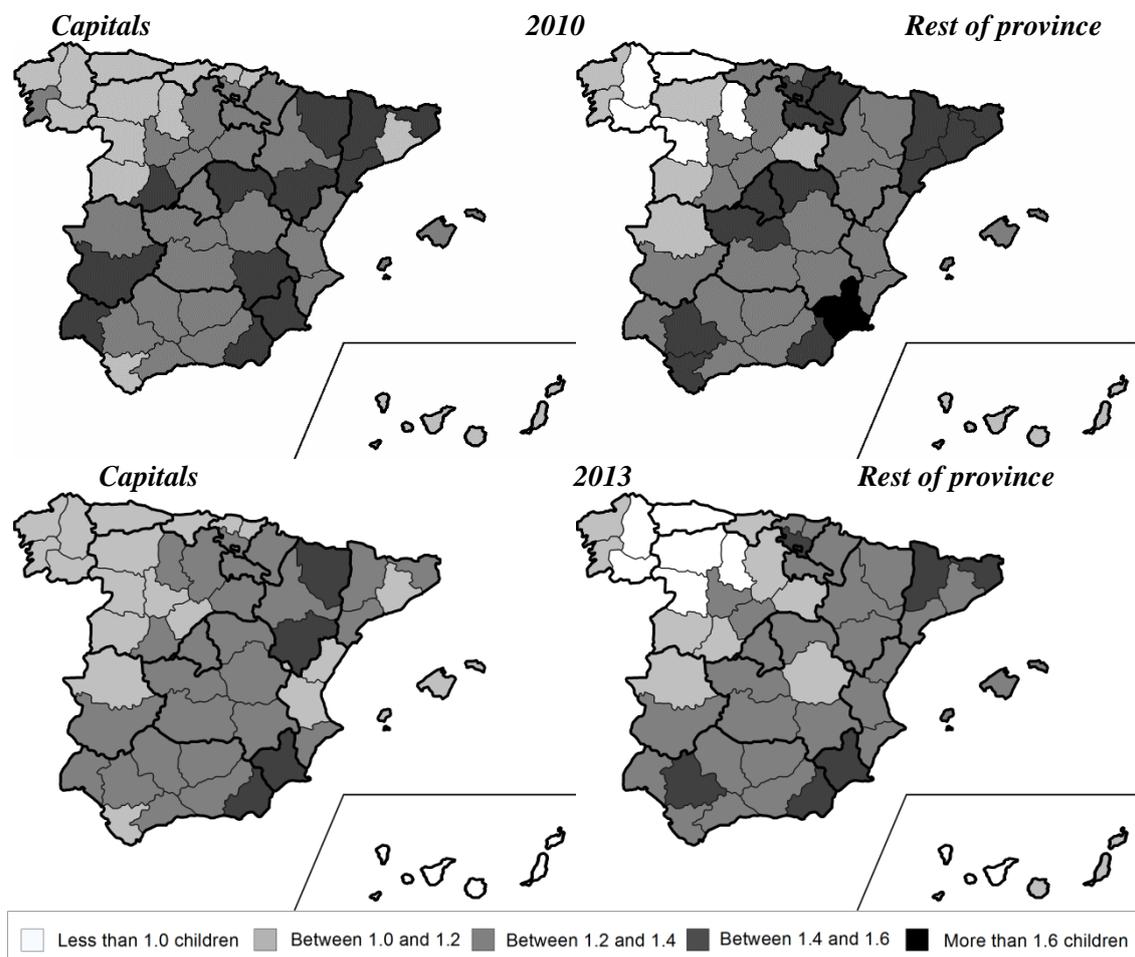


\* Three year moving average; \*\* TFR differences between the capital and the rest

Source: *Movimiento Natural de la Población*, 1998-2013, and *Padrón Continuo*, 1998-2014, INE.

Total Fertility Rate figures for province capitals and the rest of the province in 2010 and 2013 are shown in figure 2. Three main ideas can be deduced from the four maps. 1) For province capitals fertility figures are more homogeneous than for rest of the province which show more extreme numbers below or above. 2) Province capital fertility map clearly show that Spain has a main area of low fertility, i.e. the northwest, including Atlantic coast capitals from La Corunna to San Sebastian. The cities of Barcelona and Cadiz also have very low fertility, and this could be partly due to the absence of space to growth (their respective area is of only 100 sq km and 12 sq km). As new neighbourhoods cannot be built, many young families have to move to their peripheries, so suburban towns have higher fertility levels than the capital. 3) The map for the rest of the province also shows similar (but more pronounced) geographic patterns. In addition to extremely low fertility in the northwest, highly suburbanised areas of Madrid, Gualalajara and Toledo provinces, affected by the city of Madrid's urban sprawl, have relatively high fertility. The same occurs with Barcelona and the four Catalan provinces. The Basque Provinces, Navarre, La Rioja, Cadiz, Seville, Almeria, and Murcia, are also provinces with significant suburbanisation and therefore with relatively high fertility in the rest of the province. Finally, both province capital and rest of the province maps show that fertility decreased from 2010 to 2013.

FIGURE 2  
TFR spatial distribution, Spanish province capitals (left) and rest of province (right),  
2010 and 2013



Source: *Movimiento Natural de la Población*, 2010 and 2013, and *Padrón Continuo*, 2010 and 2011, 2013 and 2014, INE.

#### 4. CONCLUSIONS

Results indicate that fertility differences are related to two deeply interlinked factors, the degree to which a province's population is affected by population ageing, and age structure differences between capital cities and the rest of the province's municipalities. These two factors create a dichotomy between, on the one side, the most dynamic and younger provinces and the depopulated, elderly and demographically stagnant provinces (Lugo, Ourense, Soria, Huesca, Zamora, Ávila, Cuenca...), on the other side. In the latter, capital cities, where the province's young couples concentrate as they mostly avoid living in rural areas, usually have higher fertility than the predominantly rural surrounding areas of the rest of the province.

On the contrary, urban province capitals have lower relative fertility than surrounding peripheries mainly due to suburbanisation. This process, related to people's life cycle, implies that young couples move to suburban municipalities where they initiate or increase their families. This can clearly be observed in urbanised provinces, and particularly in those that have dense capital cities, like Cadiz, Barcelona or San Sebastian, that have relatively small areas where supply of (new) housing for young couples is hardly available, too expensive or inadequate.

In conclusion, fertility's growing spatial differences inside Spanish provinces and within urban areas could be considered a consequence of increasing municipal spatial specialisation. Moreover, results underline the importance of taking a metropolitan perspective when analysing demographic dynamics within a context of increasing spatial fragmentation.