

# **Recent Demographic and Territorial transformations in the Madrid and Barcelona Metropolitan Regions: the Centre and Periphery dichotomy**

**Cristina López-Villanueva**

*Department of Sociological Theory, Philosophy of Law and Methodology of the Social Sciences*  
[clopez@ub.edu](mailto:clopez@ub.edu)

**Isabel Pujadas-i-Rúbies**

*Human Geography Department. University of Barcelona*  
[ipujadas@ub.edu](mailto:ipujadas@ub.edu)

**Jordi Bayona-i-Carrasco**

*Human Geography Department. University of Barcelona*  
[jordibayona@gmail.com](mailto:jordibayona@gmail.com)

## **Introduction**

In Spain, this last growth period, lasting from the mid 1990's to 2007, was, from the urban point of view, mainly characterised by high demographic growth and suburbanisation. This urban and demographic growth were mainly due to three parallel processes: 1) The massive arrival of foreign immigrants to urban cores, leading to population figure recovery after some years when urban decline or stagnation dominated; 2) An increasing residential intra-metropolitan mobility, where foreigners progressively incorporate to suburbanisation; and finally 3) Demographic behaviour changes linked to the Second Demographic Transition, which had different demographic and household impacts in urban centres and peripheries. The paper seeks to analyse these processes and their effects over population structures and their composition in Spain, taking the Metropolitan Regions of Barcelona and Madrid, the two greatest Spanish urban areas, as study cases. Though they generally both intensely grew during these last years due to high foreigner increments, their cores and fringe areas became demographically different. Research will include: 1) Metropolitan demographic trend analysis since 1970, when deconcentration started; 2) An assessment of internal migration intensity and patterns, taking both Spanish and foreign population trends into account; 3) The analysis of centre and periphery differential demographic behaviour and finally 4) A comparison of the two metropolitan areas, in order to highlight their similarities and differences.

## **Data and Definitions**

To analyse population trends we have used both Spanish Censuses (1970-2001) and the local continuous register data, *Padrón continuo*, (1998-2010). The *Estadística de Variaciones Residenciales* (EVR), on its side, also offers migratory flows between Spanish municipalities and between these and foreign countries. Its data derives from the inscriptions and deletions annually registered in the Padrón produced by migrations (changes of residence), which are then verified and published by the INE (the Spanish National Statistical Institute). Annual flows between Spanish municipalities, and the main demographic characteristics (age, sex and nationality) of those carrying them out, are therefore known. Available data extends from 1988 (first year in which data is given

by municipality) to 2009. Finally, births collected in the INE's *Movimiento Natural de la Población* (population natural movement statistics) have also been included to obtain natural growth and fertility rates.

As it has formerly been stated, the two metropolitan regions analysed are, Madrid and Barcelona. Geographically speaking, the Metropolitan Region of Barcelona (RMB from now on) is a densely populated area which contains the city of Barcelona (1.62 million inhabitants living in 100 km<sup>2</sup>) and the surrounding municipalities. It is made up of 164 municipalities extending 3,236 km<sup>2</sup> and holding 5.01 million inhabitants (2010 *Padrón continuo* data), 744.514 of which are foreigners. As for Madrid, we have included the whole Autonomous Community administrative region, comprehending 178 municipalities, 8,000 km<sup>2</sup> and 6.46 million inhabitants. In both cases, we have firstly differentiated centres from urban peripheries and secondly divided municipalities by their population's size: Central city, municipalities between 100,000 and 300,000 inhabitants; between 50,000 and 100,000; between 10,000 and 50,000; between 2,000 and 5,000; and below 2,000 inhabitants. Municipality size has been established according to the one it had in 1996. And finally, we have analysed distances, in kilometres, between municipalities and the central city, ranging from municipalities which are below 10km from it to those which are over 50km from it.

### Some preliminary Findings

#### *a) Territorial expansion and Metropolitan Population Trends*

The proportion of total metropolitan residents nowadays living in central cities is less important than some years ago. In Barcelona, values had decreased from 41 per cent to 32 per cent, and in the case of Madrid from a 67 per cent to 50 per cent. Both metropolitan areas have undergone strong processes so similar deconcentration and suburbanization patterns can be found in them.

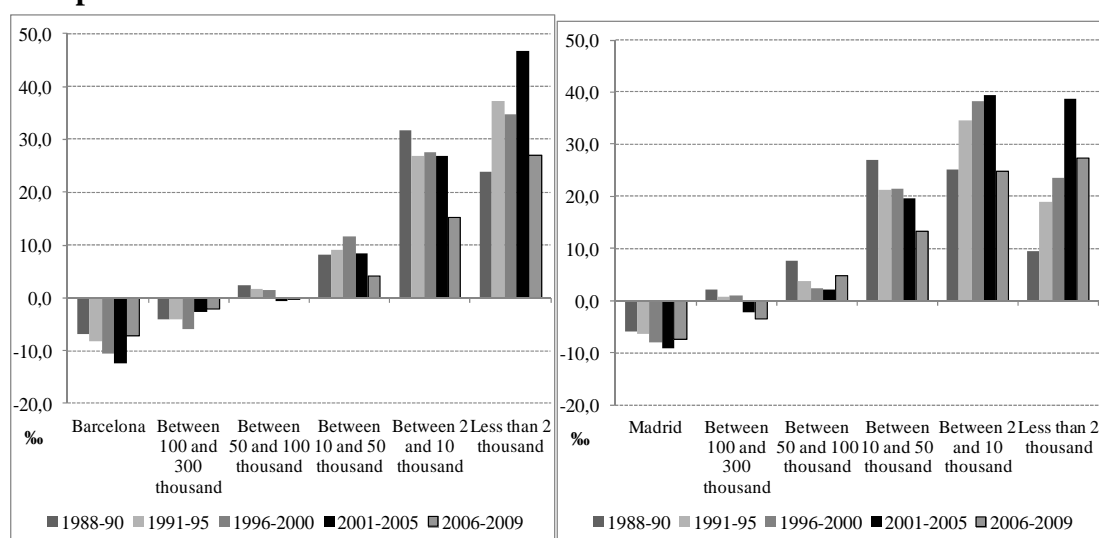
**Table 1. Population growth in Barcelona and Madrid and their respective Metropolitan Areas, 1981-2010**

	1981	1986	1991	1996	2001	2006	2010
Barcelona	1.752.627	1.701.812	1.643.542	1.508.805	1.505.325	1.605.602	1.619.337
Metropolitan Region	4.238.876	4.229.527	4.264.422	4.228.048	4.390.413	4.841.365	5.012.961
% central city	41,3	40,2	38,5	35,7	34,3	33,2	32,3
Madrid	3.158.818	3.058.182	3.010.492	2.866.850	2.957.058	3.128.600	3.273.049
Metropolitan Region	4.687.083	4.780.572	4.947.555	5.022.289	5.372.433	6.008.183	6.458.684
% central city	67,4	64,0	60,8	57,1	55,0	52,1	50,7

#### *b) Internal Migration*

In recent years, residential mobility has highly increased in both metropolitan regions. The low intensity model (mobility rates below 10 per thousand) existing during the eighties, has presently been transformed into a high intensity mobility one (a least within the Spanish standards), mobility rates reaching around 30 per thousand in the case of the *Metropolitan Region of Barcelona* and just below this figure in the *Comunidad Autonoma de Madrid*. Now mobility is mainly characterised by both dense city and central area deconcentration and small and peripheral municipality growth. On the other hand, 40 per cent, of this last decade's, RMB's and CAM's residential mobility been carried out by foreign residents, This involved important changes in previous mobility patterns, and the incorporation of new municipalities as settlement areas.

**Fig. 1. Net migration rate by municipality size, Barcelona and Madrid Metropolitan Areas**



*c) Demographic patterns*

Territorial differentiation mechanisms are based on two processes: the internal migration and sociodemographic behaviour. Interactions between these emphasizes differences between centres and peripheries.

**Table 2. Fertility indexes for the urban areas of Barcelona and Madrid, 1986-2009**

		<i>Crude Birth Rate</i>								
		1986	1991	2001	2009	1986	1991	2001	2009	
Barcelona		9.0	8.3	8.8	9.2	Madrid	9.7	8.8	7.5	10.7
Other municipalities RMB		10.8	9.7	11.2	12.2	Other municipalities CAM	13.9	11.8	15.7	13.5
Metropolitan Region (RMB)		10.1	9.2	10.4	11.3	Metropolitan Region (CAM)	11.3	10.0	11.2	12.1
		<i>Total Fertility Rate</i>								
		1986	1991	2001	2009	1986	1991	2001	2009	
Barcelona		1.27	1.13	1.18	1.15	Madrid		1.20	1.31	
Other municipalities RMB			1.25	1.31	1.53	Other municipalities CAM		1.38	1.65	
Metropolitan Region (RMB)		1.85	1.20	1.27	1.41	Metropolitan Region (CAM)	1.47	1.24	1.28	1.47
		<i>Mean Age of Maternity</i>								
		1986	1991	2001	2009	1986	1991	2001	2009	
Barcelona		29.3	30.3	31.8	32.2	Madrid	29.3	29.8	31.5	31.6
Other municipalities RMB			29.0	30.9	30.9	Other municipalities CAM			31.3	31.6
Metropolitan Region (RMB)		28.7	29.5	31.2	31.3	Metropolitan Region (CAM)	29.7	31.5	31.6	
		<i>Births Unmarried Women</i>								
		1986	1991	2001	2009	1986	1991	2001	2009	
Barcelona		9.3	12.8	26.8	38.3	Madrid		25.4	37.3	
Other municipalities RMB		6.1	10.4	20.5	34.7	Other municipalities CAM		18.4	30.7	
Metropolitan Region (RMB)		7.3	11.2	22.4	35.7	Metropolitan Region (CAM)		21.9	33.8	

Fertility is a good example. In a low fertility context (in 2009 for Spain as a whole the total fertility rate was 1.39) differences between metropolitan centres and peripheries are highly and increasingly relevant. The TFR for the RMB the metropolitan centre is 1.15, while in its periphery values rise to 1.53. In the case of the CAM, the centre's TFR is 1.31, while in their peripheries, 1.65 (higher than in all Spanish regions).

#### d) Population structure

Central cities were under a continuous aging process, which the arrival of international migrants during this last years has reversed Peripheries, by contrast, have a younger population structure, so their population structures are complementary.

**Table 3. Indexes of population structure, Madrid and Barcelona Metropolitan Regions, 1991-2010.**

	Madrid			CAM (without Madrid)			Barcelona			RMB (without Barcelona)		
	1991	2001	2010	1991	2001	2010	1991	2001	2010	1991	2001	2010
<16	16.7	13.2	14.2	27.1	16.8	18.1	15.9	12.3	12.8	21.6	15.8	17.4
16-64	68.2	67.5	67.0	66.1	74.1	71.5	66.6	66.0	66.6	67.3	70.0	68.0
>65	15.1	19.3	18.8	6.8	9.1	10.4	17.5	21.7	20.6	11.1	14.2	14.6
65 and +/0-14	90.3	146.2	132.3	25.1	53.9	57.8	110.2	175.8	160.5	51.1	89.9	84.0
85 and +/65 and +	20.8	22.8	30.8	21.1	21.7	24.6	22.4	24.8	32.6	20.7	21.3	26.8
Rm	88.8	87.7	88.8	99.8	99.1	99.1	89.4	88.4	90.7	98.2	98.3	99.3

#### e) Differences and similarities

First results indicate that the cities of Barcelona and Madrid, as well as their respective metropolitan regions, show similar population trends, composition -share of foreigners- and internal mobility patterns. These findings prove the existence of an urban specificity that makes them different of the rest of the country. Furthermore, both centres are involved in a very intense ageing process, only recently slightly reversed. On the other hand, pronounced differences can be observed. Demographically speaking, these last decades, Madrid and CAM's have grown more than the RMB. However,, the latter's mobility patterns, and centre and periphery demographic behaviour are more complex .

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