

## NEW SPATIAL MOBILITY PATTERNS IN LARGE SPANISH CITIES: FROM THE ECONOMIC BOOM TO THE GREAT RECESSION

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**Abstract:** Until 2008—the beginning of the economic crisis—Spanish metropolitan areas were characterised by relatively high residential mobility, suburbanisation, and urban sprawl. Municipalities situated farthest away from the core cities were the areas that were expanding more rapidly, while urban cores were losing native population that was being replaced by foreign immigrants. All these features presumably changed when the Great Recession hit the Spanish economy and the housing bubble burst. Using two INE (Spanish National Statistical Institute) data sources, the *Padrón*, or local register, and the *Estadística de Variaciones Residenciales*, or residential moves statistics, this paper studies changing trends in residential mobility and migration between 1999 and 2012 in Spain, focusing on the country's main urban areas: Madrid, Barcelona, Valencia, and Seville. In particular, internal migration patterns during the economic expansion and crisis periods are compared. Despite the fact that high unemployment since 2008 has certainly affected pre-crisis trends, results show that residential mobility has decreased much less than expected. Nevertheless, territorial patterns have changed and are now much less polarised. Urban cores and inner-ring towns, which had previously been losing inhabitants because of people moving to outer-ring areas, are now losing less native population. By contrast, suburban municipalities, which had been the most attractive to internal migrants during the economic growth period, are now much less appealing, as corroborated by the fact that practically no new housing is being built in these areas and their housing market has plummeted.

**Key words:** Intra-metropolitan migration, residential mobility, metropolitan areas, economic crisis, Spain.

## **ACKNOWLEDGMENTS**

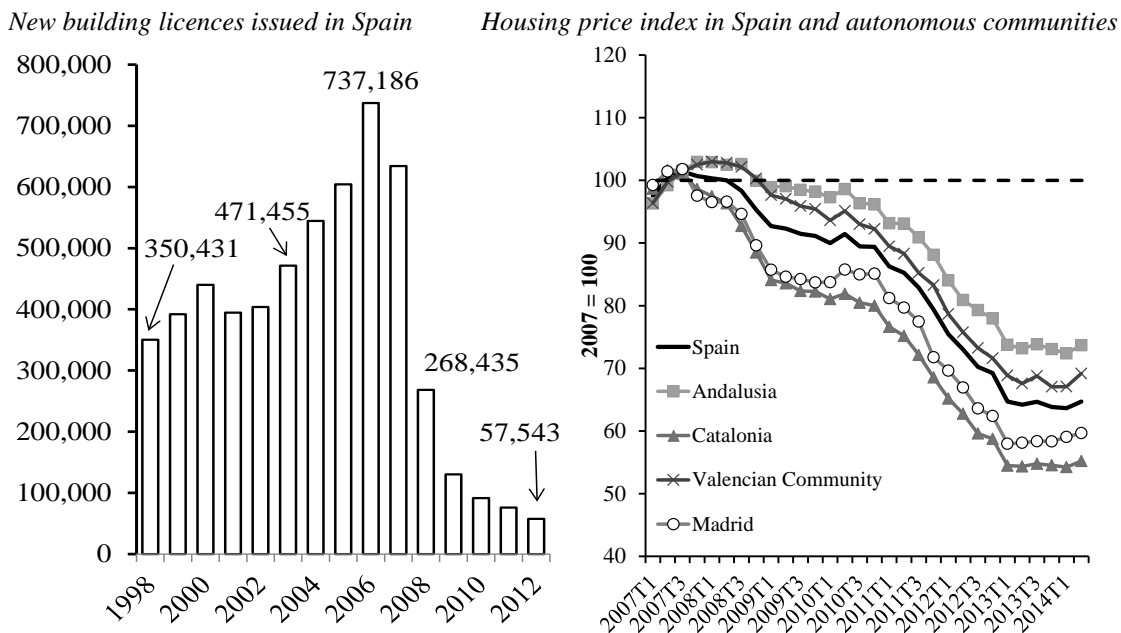
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# NEW SPATIAL MOBILITY PATTERNS IN LARGE SPANISH CITIES: FROM THE ECONOMIC BOOM TO THE GREAT RECESSION

## INTRODUCTION

In the last fifteen or so years, Spain has undergone dramatic economic and demographic changes. During the initial economically expansive years of this period, which ended with the Great Recession of 2008, the active population grew to unprecedented limits—from 16 million to 23 million between 2001 and 2008—and unemployment fell to an all-time low: to 7.9% of the active population in the second quarter of 2007. That same year, after a long period of very positive employment growth rates, the number of employed people reached a record high of 20 million. Simultaneously, the so-called “Spanish property bubble” created a feedback loop, leading to exaggerated and chaotic urban growth (Burriel 2008). In 2006, more than 737,000 building licences were issued—that is to say, more than in any other European country (Figure 1, left). In addition, international immigration flows to Spain accelerated, and, therefore, the country’s population grew at a record pace. In 2007, there were almost a million new immigrants, and the foreign-born came to constitute 14% of the population.

However, during the past economic crisis years, beginning in 2008, equally noticeable changes have been perceived. Spain currently has one of the highest European unemployment rates. According to the 2013 *Encuesta de Población Activa* (EPA), the official Spanish labour force survey, more than 6 million people, that is, 26.9% of the economically active population, are unemployed. In fact, some southern Spanish provinces have withstood unemployment rates of more than 40%. With respect to the housing market, it, too, has declined dramatically. As observed in Figure 1, both the number of homes being built (left) and their prices (right) have plummeted—especially in Madrid and Catalonia. The 737,186 building licences issued in 2006 in Spain as a whole dropped to only 57,543 in 2012.



**Fig. 1** Housing built from 1998 to 2012 (left); housing price index from 2007 to 2014 (2007=100) (right). Source: Instituto Nacional de Estadística (INE), Ministerio de Fomento, Spain.

This paper explores changing trends in residential mobility between 1999 and 2012 in Spain, focusing on the country’s main urban areas: Madrid, Barcelona, Valencia, and Seville. In particular, internal migration patterns during the economic expansion and crisis periods are compared. In relation to that of other European countries, Spain’s internal migration has mostly been low, and—until recently, in the opinion of Mulhern and Watson (2009)—it has scarcely been responsive to spatial differences in wages and unemployment, which are considered the main reasons for labour-based internal migration (Harris and Todaro 1970). This low internal migration has been attributed to generally high (if not very high) national unemployment levels and easily available unemployment benefits, together with other factors, such as the overall expansion of the welfare state and the opportunity for a decent quality of life across

Spain (Antolin and Bover 1997; Bover and Velilla 2005), the rigidity and marked segmentation of the Spanish labour market (Bentolila 1997), and the deindustrialisation and geographical dispersion of economic activity in more recent decades (Bover and Arellano 2002; Paluzie et al. 2009), among other factors.<sup>1</sup> Not only interprovincial migration, but also short-distance residential mobility has traditionally been low, mainly occurring during the prime household formation years (López-Gay 2004). Until recently, housing and property acquisition were intimately and directly linked to couple formation and to leaving one's parents' home (Cabré and Módenes 2004). However, during the aforementioned years of economic expansion, residential mobility rates increased relatively until they peaked in the middle of the first decade of the 21<sup>st</sup> century. It would be expected, then, that the real estate market downturn and the economic crisis itself should have had a significant impact on the size and direction of internal migration flows, particularly metropolitan-scale ones. As will be shown in this paper, though, some of the residential mobility findings are not fully consistent with these expectations.

This paper builds on earlier research. The authors previously analysed urban dynamics in 64 Spanish urban areas with over 50,000 inhabitants (Gil-Alonso and Bayona 2012) and in 15 metropolitan areas with more than half a million residents (Gil-Alonso et al. 2016). Our results showed suburbanisation flows to be diminishing during the economic crisis period in nearly all cases. Core cities, which in the expansion years were losing native population, now are losing less Spanish inhabitants or even are gaining some, while suburban municipalities have become less attractive for the Spanish-born. At the same time, as less foreign immigrants are arriving in Spanish cities and more of them are leaving the country, they are putting less pressure on the housing markets of core cities. Moreover, they are no longer adding to suburbanisation flows as they did before. These findings indicate that cities are becoming increasingly more attractive—or, at least, less uninviting. In keeping with these results, the research of other authors has shown similar trends for both Spain (López-Gay 2014) and other developed countries (Rérat 2012; Kabish and Haase 2011; Buzar et al. 2007; Storper and Manville 2006; Ogden and Hall 2000).

In this current paper, we want to focus on Spain's main metropolitan areas—Madrid, Barcelona, Valencia, and Seville—for which residential mobility patterns will be analysed in further detail. Instead of simply distinguishing between core and fringe areas, as we did in previous articles, this paper uses data at the municipality level. From a population size point of view, Madrid and Barcelona are much larger and can be considered European-scale metropolises, while Valencia and Seville are much smaller. As far as foreign migrant settlement is concerned, there also are significant differences. For instance, Seville received substantially less international immigrants than the other three urban areas during high immigration years. In this way, quite diverse metropolitan areas are compared in this article, hence enriching our understanding of urban dynamics across Spain.

## AREAS ANALYSED, METHODOLOGY, AND DATA

In 2013, nearly a third of Spain's population, 14.4 million people or 30.6%, were residing in Spain's four largest metropolitan areas (Figure 2). The mobility behaviour of these inhabitants, therefore, has relevant effects on the country's population changes, though these metropolitan areas contain only 410 municipalities—5% of the total number—which represent 2.8% of the country's area.

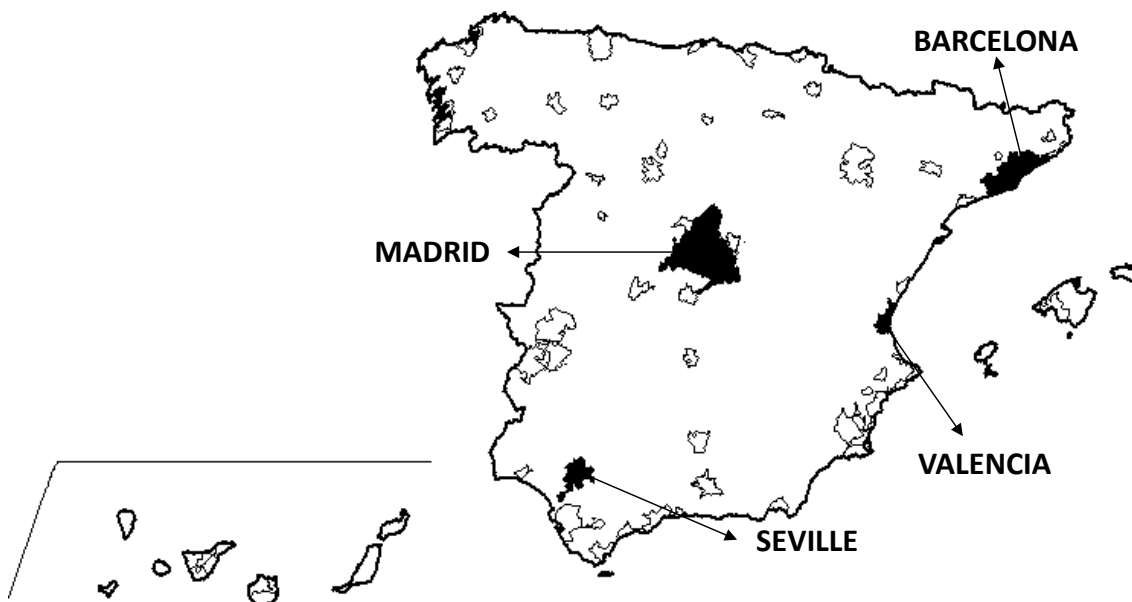
In Spain, metropolitan areas do not have official limits, so the choice of any specific boundaries needs to be justified. Out of the many possibilities that diverse authors (López de Lucio 2003; Pozo and García-Palomares 2009; Valenzuela 2010) and public administrations offer for Madrid, the entire Autonomous Community of Madrid (CAM) has been the one selected, for it is among the most frequently used boundaries in recent literature—see, for example, Méndez (2008). The CAM holds 179 municipalities within 8,021 km<sup>2</sup>, and, according to the 2013 *Padrón* (local register), it officially includes 6,495,551 residents.

For Barcelona, the traditional Catalan administrative unit usually known as the Barcelona Metropolitan Region (BMR) has been used in this paper. It is made up of 164 municipalities within 3,300 km<sup>2</sup>, and it comprised 5,051,502 dwellers in 2013.

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<sup>1</sup> Bover and Arellano (2002) include factors for low interprovincial migration within Spain such as differences in education levels (i.e., highly qualified workers tend to migrate more than less qualified workers), high housing prices in conjunction with a low supply of rented dwellings, and increased employment opportunities in the service sector in all regions since the late 1970s. Similarly, Paluzie et al. (2009) explain that the loss of importance of the industrial sector in attracting migratory flows and the increasing importance of the service sector (which is more spatially dispersed and in turn favours short-distance, rather than interprovincial, moves) have caused a change in the migratory model and its spatial distribution, which is not as concentrated as it was during the main period of industrialisation in the middle of the 20<sup>th</sup> century. As a consequence of this increasing spatial dispersion of emigration and immigration, the growth in the gross number of migrations during the most recent phase of economic expansion (mid-1990s to 2008) was not accompanied by an increase in net migration (Ródenas and Martí 2005).

Much less attention in the literature has been paid to demarcating Valencia and Seville, as they are much smaller and have only recently developed as metropolises. The *Atlas Estadístico de las Áreas Urbanas en España* (Ministerio de la Vivienda 2006) has been the main source from which Seville's metropolitan area boundaries have been chosen. Besides the capital, these boundaries include 23 other nearby municipalities, and their 1,529.2 km<sup>2</sup> contain 1,301,505 inhabitants. Finally, the delimitation of Valencia's metropolitan area used in this article has been the one defined by the *Institut Valencià d'Estadística*. It has 44 municipalities within 628.2 km<sup>2</sup> and 1,541,628 residents.



**Fig. 2 Spain's main metropolitan areas.** Source: Map based on the 'Atlas de las Áreas Urbanas en España', Ministerio de la Vivienda.

Owing to urban sprawl and the real estate boom, these metropolitan boundaries have been largely exceeded. While Madrid has grown towards the neighbouring provinces of Guadalajara and Toledo, Barcelona has done so vis-à-vis the rest of its eponymous province. Additionally, analyses such as that of Feria (2008) include 74 municipalities for Valencia and 49 for Seville. However, the supplementary number of inhabitants incorporated by these wider delimitations is relatively small. Therefore, we consider that the formerly established limits are still valid and are the most adequate for comparing our results with those obtained by other authors.

Given their size and recent history, Madrid and Barcelona can both be considered mature urban areas, the latter particularly so. It is a polycentric region (Roca Cladera et al. 2011), with several intermediate-size towns—Terrassa, Sabadell, Mataró, Badalona, Granollers, and Vilafranca del Penedès, among others—which also generate their own commuting and residential mobility flows. However, Madrid, a more monocentric type of urban area, has only lately begun to develop this phenomenon. Seville and Valencia have more recently become metropolitan areas, and their suburban networks continue to grow.

Two INE (Spanish National Statistical Institute) data sources, the *Padrón*, or local register, and the *Estadística de Variaciones Residenciales*, or residential moves statistics, have been used in this paper. The *Padrón* has mainly been employed to obtain municipal population stocks and to calculate rates. All the residents of a municipality, including foreigners, have the right and the duty to register with the local *Padrón*, independent of their legal situation—a particularly significant issue for a high immigration period. Most illegal immigrants do register, as this gives them access to public health and education systems. Therefore, the *Padrón* is considered to be an adequate data source for studying foreign migrant stocks in Spain. Yet, it is also true that, as Domingo and Sabater (2010) claim, illegal migrants might have had certain difficulties registering in some municipalities for political reasons.

The *Estadística de Variaciones Residenciales* (EVR) microdata provide information on migratory flows. This database collects changes in the *Padrón*, that is to say, residential moves between Spanish municipalities. As for flows between Spanish municipalities and abroad, they are also included, though the quality of this data leaves much to be desired. Despite the fact that some moves are registered years after they are carried out—a migrant can register in the local *Padrón* after years of residing in a municipality—the EVR is considered a good data source for studying internal migration in Spain (Martí

and Ródenas 2006). As the EVR registers movements and not people, it includes some re-emigrations. However, as Martí and Ródenas (2012) claim, these numbers are hardly significant.

Our present research covers the years between 1999 and 2012. In other words, it starts when the immigration boom begins, and ends the last year for which data are available. To facilitate a deeper intra-metropolitan mobility comparison, two four-year sub-periods have also been used. The first sub-period corresponds to 2005-2008, years of higher mobility and economic expansion, and the second, to 2009-2012, the economic crisis period. As a way of taking differences between national and foreigner flows into account, we have decided to use data by nationality. However, this decision involves accepting certain drawbacks for the most recent years, as the number of immigrants—especially Latin Americans—recently acquiring Spanish nationality has grown. Using data by country of birth would also have implied certain problems, such as not being able to take immigrants' descendants born in Spain into account. Therefore, in the end, we decided to use nationality as a criterion, to make these results and those of former Spanish studies comparable.

Both classical migration indicators, such as crude and age-specific internal immigration and emigration rates and net migration rates, in addition to less common indicators, like the Total Residential Mobility Rate (TRMR, or Gross Migraproduction Rate, GMR), are used in this paper. This last indicator is calculated in a similar way to the better-known Total Fertility Rate (TFR). It indicates the number of moves that a person would make if they had had the same age-specific internal migration rates throughout their lifetime as in the period analysed. In other words, it explains what would happen if rates remained stable throughout a person's life. The corresponding formula is

$$TRMR = a * \sum_{x=0}^w m_{x,x+n}^{t,t+n}$$

where  $m_{x,x+n}^{t,t+n}$  are age-specific internal migration rates for the  $t$  period,  $a$  is the length of the age group, and  $w$  is the last age group analysed.

A Migration Effectiveness Index (MEI), or net migration to total in- and out-migration ratio, has also been calculated for the four metropolitan areas and for both periods analysed:

$$MEI = \left( \frac{Immigration - Emigration}{Immigration + Emigration} \right) * 100$$

A positive result indicates that there are more immigrants than emigrants in a given territory, and a negative result indicates the opposite. The values, which vary between 1 and -1, also indicate this phenomenon's intensity.

Finally, it should be noted that special attention has been given to the two largest metropolitan areas, Barcelona and Madrid, as immigration, emigration, and net growth rates by municipality size have been calculated for these areas. Here, the 1988 to 2012 period has been divided into six sub-periods: 1988-1990, 1991-1995, 1996-2000, 2001-2005, 2006-2008, and 2009-2012, the last two of which correspond to maximum economic growth and economic crisis phases, respectively. As for municipalities themselves, they have been grouped into six size categories depending on their 1996 population. That date has been chosen as it is a year in the mid-1990s, a high suburbanisation decade in which foreign immigration still had little effect.

## LITERATURE REVIEW

Until the Great Recession of 2008, the overall population of Spanish metropolitan areas had continually been expanding (Gil-Alonso and Bayona 2012; De Cos 2007). Spain's traditional compact city model had been substituted by one favouring urban sprawl (Pujadas 2009; Garcia-Coll 2011; Rubiera et al. 2015) and a less dense urban structure (Muñoz 2011), particularly in Madrid and Barcelona. Therefore, these larger and more mature metropolitan areas were becoming increasingly complex (Feria and Albertos 2010). Indeed, as population, production, and jobs decentralise, urban complexity also increases (see, for instance, Alberich 2010, for Barcelona; and Gutiérrez and García-Palomares 2007, for Madrid).

Furthermore, during the early 21<sup>st</sup> century, large international migration flows, which were particularly concentrated in large urban areas, were also incorporated into this process. Foreign immigrants did not only become one of the Spanish property bubble's crucial agents as part of the construction sector's labour force, but also they became part of the housing demand, too. In other words, their settlement patterns also contributed to suburbanisation, as foreign immigrants increasingly became incorporated into suburban areas (see Bayona and Gil-Alonso 2012, for Barcelona; or Pozo and García 2009, for Madrid). These residential moves by foreign-born people from gateway cities to suburban

areas—or from neighbourhoods with a high concentration of immigrants towards less concentrated zones—are in line with the explanation proposed by the *spatial assimilation theory*<sup>2</sup> (Massey 1985; Massey and Capoferro 2008; Zorlu and Mulder 2008) and also with results obtained by recent studies (García-Coll et al. 2016; Silvestre and Reher 2014; Bayona et al. 2013). Moreover, immigrants normally have higher mobility rates than Spanish-born people (Rogers and Henning 1999), as well as different residential mobility patterns (Catney and Finney 2012; Vidal and Windzio 2012; Sabater et al. 2012).

Up to 2008, Spain's main cities seemed to follow the classical cyclical urbanisation model, that is, the 'stages of urban development' formulated by Van den Berg et al. in 1982. This model has been widely used by urban geographers and by other urban researchers to explain past and present population changes in functional urban regions (FUR) and to compare contemporary European urban trends (Cheshire and Hay 1989; Cheshire 1995; Champion 1995; Haase et al. 2005; Buzar et al. 2007; Kabisch and Haase 2011). The model's main strength is that it does not merely analyse cities' demographic growth as a whole, but differentiates between cores and the surrounding fringe areas. More specifically, it describes four sequential European urban growth and decline stages: urbanisation, suburbanisation, desurbanisation, and reurbanisation.

Van den Berg et al. (1982) considered that the fourth stage, reurbanisation, was a purely hypothetical and unlikely one. However, population data from the 1990s and the early 21<sup>st</sup> century show that many European core cities are regaining inhabitants, and, thus, some kind of reurbanisation is, in fact, taking place (Lever 1993; Cheshire 1995; Ogden and Hall 2000; Hugo et al. 2003; Haase et al. 2005; Buzar et al. 2007; López-Gay 2014). Nevertheless, it should also be noted that as 'reurbanisation' is still an undertheorised concept (Buzar et al. 2005), it has very different meanings (Rérat 2011). Unlike what Van den Berg et al. had suggested would occur in the reurbanisation stage, core city recovery is presently not being accompanied by suburban decline, but rather by urban sprawl and counterurbanisation.

For this reason, the 'stages of urban development' model has been heavily criticised (Champion 1995; Cheshire 1995; Storper and Manville 2006; Buzar et al. 2007; Kabisch and Haase 2011; Rérat 2011). Nonetheless, it can still be used as a conceptual framework for analysing recent urban history in Spain. Between the late 1950s and the mid-1970s, there was first a rapid growth and absolute concentration stage: urbanisation. Then, the second stage, suburbanisation, starting in the mid-1970s and ending in the mid-1990s, had strong urban dispersion and large urban core population loss as its main features. A sudden foreign immigration boom changed trends once again. In the mid-1990s, Spanish cities entered a new third development stage (Nel-lo 2010) in which, despite increasing suburbanisation flows towards metropolitan peripheries, cores started recovering population. In other words, Spanish and other Western European urban areas entered the 21<sup>st</sup> century at the reurbanisation stage, the one in which urban centres regain population (Cheshire 1995; Champion 2001). However, in contrast to the Van den Berg et al. (1982) classical model<sup>3</sup>, Spanish cores did not grow because of suburban population returning to them, but rather because of foreign immigrants settling in them (Feria and Albertos 2010; García Docampo and Otero 2012; Rérat 2012 also mentions foreign immigration as a factor contributing to Swiss cities' growth).

This expansive phase finished abruptly in 2008, when the economic crisis began, though in some cities the crisis's demographic effects were not visible until 2009 or even 2010. The economic crisis did not affect all Spanish territories to the same extent (Méndez et al. 2015; González et al. 2015). The areas that were the hardest hit were the most dynamic ones and those where residential construction had thrived, such as the Mediterranean coast (Burriel 2008). The crisis also had the consequence of ending the international migration boom. As many less foreign immigrants arrived, core cities stopped growing, and a large amount even started losing population. However, at the same time, there have also been clear signs that these cities are recovering their attractiveness for young Spanish people and are therefore losing less Spanish-born population, who previously had been moving to urban peripheries (López-Gay 2014).

Literature on the effects of an economic crisis on metropolitan migration reveals that economic recessions reduce residential mobility (Courgeau 1985). This result was also obtained by Recaño and

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<sup>2</sup> The *spatial assimilation theory* states that foreign-born immigrants ultimately disperse from early settlement places in the host country—in which members of the same ethnic or national group tend to cluster—to less segregated locations. This process of avoiding residing in ethnic concentrations is in parallel with immigrants' socio-economic advancement and with their creation of ties with the host country, potentially resulting in their separation from the same origin group and their acculturation (Silvestre and Reher 2014: 52). This theory has been challenged by the *segmented assimilation theory* (Portes and Zhou 1993), which posits that diverse immigrant groups may assimilate within different types of locations and places, and by the *ethnic enclave theory* (Bolt and Van Kempen 2010), which argues that immigrants—even those who achieve socio-economic success—may prefer to remain in (or to move to) ethnic enclaves, where they obtain benefits from social networks (Silvestre and Reher 2014).

<sup>3</sup> Kabisch and Haase (2011) have applied the classical cyclical urbanisation model to recent European developments and claim that since 2001, this continent's urban areas are undergoing several stages at a time and that, therefore, phases would not be succeeding one another anymore. Moreover, they observed that European-level regional trends would appear. Deurbanisation would dominate Eastern Europe, while suburbanisation would still be the most important phenomenon in the rest of the continent, where reurbanisation processes would also become increasingly relevant.

Cabré (2003) and by Pujadas and García-Coll (1995) concerning previous financial crises in Spain. Nevertheless, recent studies show that despite the current tough financial situation, metropolitan residential moves in Spain have only scarcely dwindled (García-Coll et al. 2016; Pujadas et al. 2016)<sup>4</sup>.

The economic crisis is not the only factor affecting intra-metropolitan residential mobility flows. Some authors claim that the decrease in mobility is not directly related to the economic crisis but to macroeconomic changes of the past decades (Cooke 2013). Other explanations, such as an individual's life cycle or housing property characteristics, have also been offered. Considering that in Spain access to dwellings is generally linked to ownership, residential mobility is normally regarded as low (Helderman et al. 2004).

Finally, though not less important, are residential mobility and demographic structure interactions. After years of high foreign immigration and of baby boomers (born in the 1960s and 1970s) leaving their parents' homes, consequently putting pressure on the residential market, both trends now point in the opposite direction (Recaño 2015). Fewer households are presently being formed, as both today's young Spanish-born cohorts (born in the 1990s, during very low fertility years) and immigration flows are significantly smaller. In fact, many immigrants are actually leaving the country, thus greatly reducing the housing demand and increasing empty dwelling availability (Módenes and López-Colás 2014).

In sum, though residential mobility has possibly fallen because of the economic crisis, other factors might have played a role in this decline.

## **RESULTS: POPULATION AND RESIDENTIAL MOBILITY CHANGES DURING THE LAST DECADES**

### *Housing stock changes and the impact of the economic crisis*

During the past decades, the Spanish housing stock has undergone extraordinary growth. The 17.2 million dwellings that existed in 1991 augmented to 25.2 million in 2011. More specifically, in the first decade of the 21<sup>st</sup> century, more than 4 million new homes were built in Spain, which means that the housing stock increased by 20.3%. According to census data, in 2001 there were 20,946,554 dwellings, and in 2011 there were 25,208,625. In fact, housing construction continually increased during the economic expansion years until 2006, a year in which 737,186 new municipal licences were issued (see Figure 1 again). Then, in the following recession time period, this number abruptly fell to 57,543 in 2012. These figures reflect an obvious decrease in construction and real estate transactions. The number of new mortgages, which plunged from 1.3 million in 2006 to around 200,000 in 2013, would be another good example of this reduction in housing demand owing to the impact of the economic crisis. Concerning the number of main dwellings (equivalent to households, as each household has one—and only one—primary place of residence, and therefore excluding second homes or empty houses), their growth is even more exceptional. Their number increased from 11.7 million in 1991 to 14.2 in 2001, and then to 18.1 in 2011. This means that in the latter decade (2001-2011), the number of main dwellings rose by 27.5%. This household boom can be explained by three reasons: (1) Spanish baby boomers born in the 1960s and 1970s moving out of their parents' homes; (2) the foreign immigration boom; and (3) the reduction in the average household size because of declining fertility, an increase in the number of divorces, and an increase in one-person households.

A significant part of this household expansion has taken place in the four selected metropolitan areas, though not as much in core cities as in their peripheries. According to census data for Spanish provinces, during the 2001-2011 period, main residences in the core city of Barcelona increased by 15%, while in the rest of the province, they increased by 28%. In Madrid, the growth differences between core and periphery have been even larger—an increase of 22.2% in the number of main dwellings in the former, compared with an expansion of 44.8% in the latter. The figures for Seville (18.5% in the urban core and 30.9% in the city periphery) and for Valencia (19.4% and 32%, respectively) are similar. Therefore, it can be observed that the number of households has grown more in metropolitan peripheries than in urban cores.

### *Metropolitan population changes*

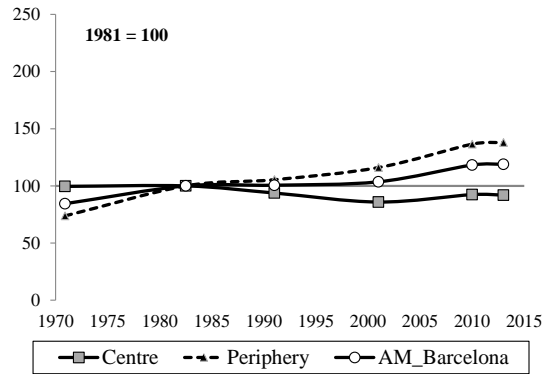
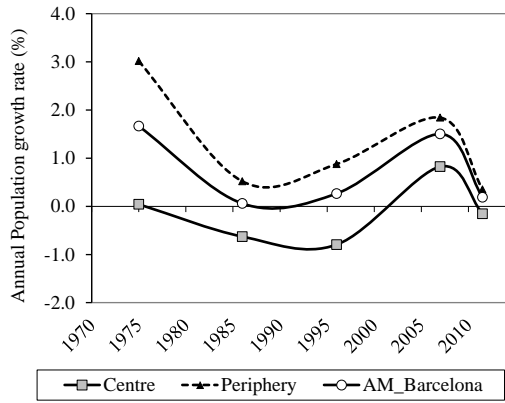
As observed in Figure 3 (Annual Cumulative Growth Rate on the left, and Index 1981=100 on the right), demographic growth has taken different paths in the metropolitan areas of Madrid, Barcelona, Valencia, and Seville.

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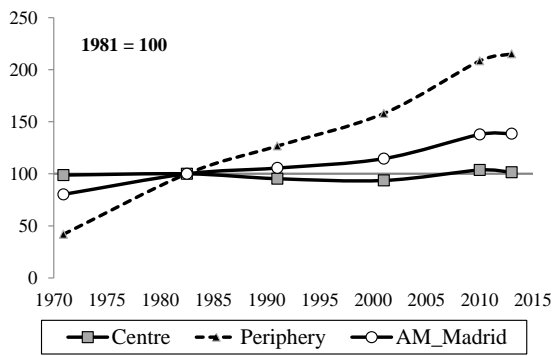
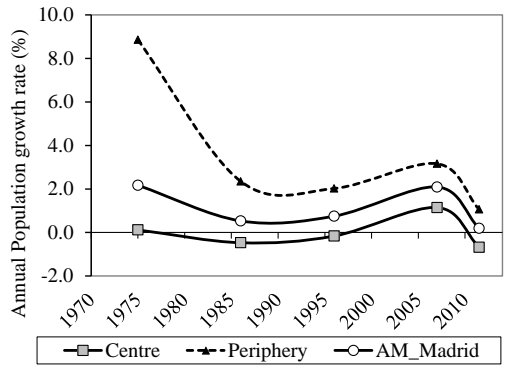
<sup>4</sup> By contrast, interprovincial or inter-regional migrations have reduced in intensity and have changed their directions; these flows are now more balanced. Minondo et al. (2013) point out that there has been a change in the sending and receiving regions because of Spanish regions' differing responses to the economic crisis: those areas less affected are now receiving migrants, whereas those more affected are losing them (see also Gil-Alonso et al. 2015).



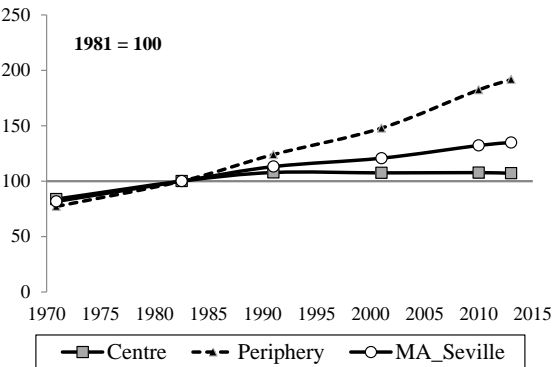
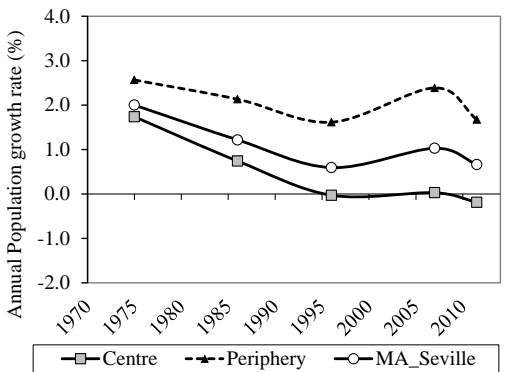
### BARCELONA



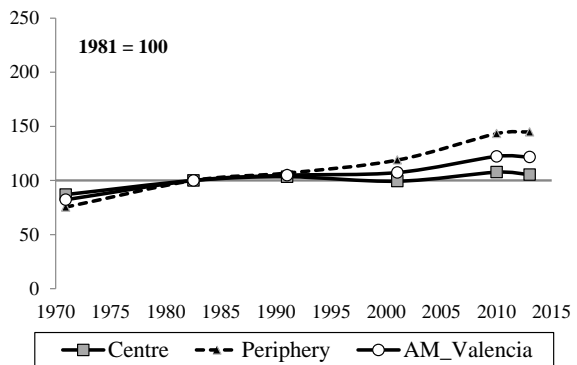
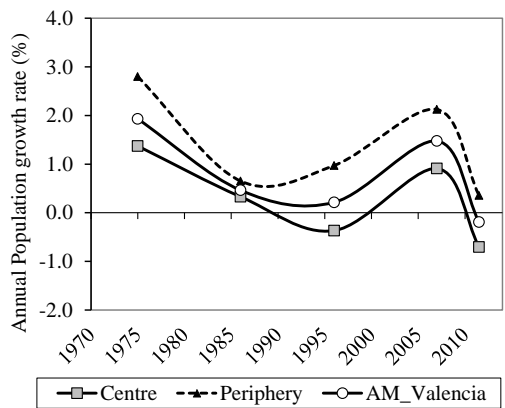
### MADRID



### SEVILLE



### VALENCIA



**Fig. 3 Core city, periphery, and total metropolitan area (AM) population changes, 1970-2013: Annual Cumulative Growth Rate (left) and Index 1981 = 100 (right).** Source: Censuses of 1970, 1981, 1991, and 2001; and 2010 and 2013 Padrón, INE.

As a consequence of the economic crisis, population size is currently (in 2013) stagnant in the Madrid and Barcelona metropolitan areas, clearly decreasing in Valencia, and still increasing in Seville, though less sharply than before. As for the core cities of these metropolises, they now are all losing population once again, even though the cities previously experienced extremely different population circumstances: while the city of Seville had a stable population during the high foreign immigration years, the populations of the other core cities significantly increased. In contrast to their cores, all of these cities' peripheries continue to gain population, though at the slowest pace since the 1970s.

Unemployment rates and the economic structure of these cities could both partly explain these population differences (Rubiales 2016). The two largest cities, with a more diversified economy and a highly developed service sector, have resisted the economic crisis better, as their unemployment rates are currently close to 20% (as opposed to 6% in 2007), compared with rates of 29% in Valencia and above 35% in Seville (as opposed to 8% and 12%, respectively, in 2007).

Nevertheless, foreign migration seems to be the factor that best explains population change in these urban areas. This finding was true during the economic boom years, when foreign population shares of all four metropolitan areas constantly increased—though much less so in Seville, where unemployment levels were much higher than in the other three cities. And this observation still holds nowadays, when foreign population shares are decreasing because of return immigration flows, and also as a result of Spanish nationality acquisitions, especially among Latin Americans, who are more numerous in Madrid than in the other three cities. Seville, again, is the only exception, as it is the sole metropolitan area that continues to attract foreign immigrants (although both their number and share are still low), and, therefore, its population currently is growing.

### *Residential mobility patterns*

Residential mobility within urban areas has been growing since the 1970s. However, since the mid-2000s (i.e., since *before* the economic crisis), both the absolute number of moves (Figure 4) and the relative intensity of residential mobility have dropped.

Barcelona's and Seville's metropolitan residential mobility peaked as long ago as 2006, and that of Madrid and Valencia, in 2007. Madrid had the highest number of moves (168,102), and Barcelona, somewhat less (159,811). At a considerable distance were Valencia (33,085) and Seville (19,291).

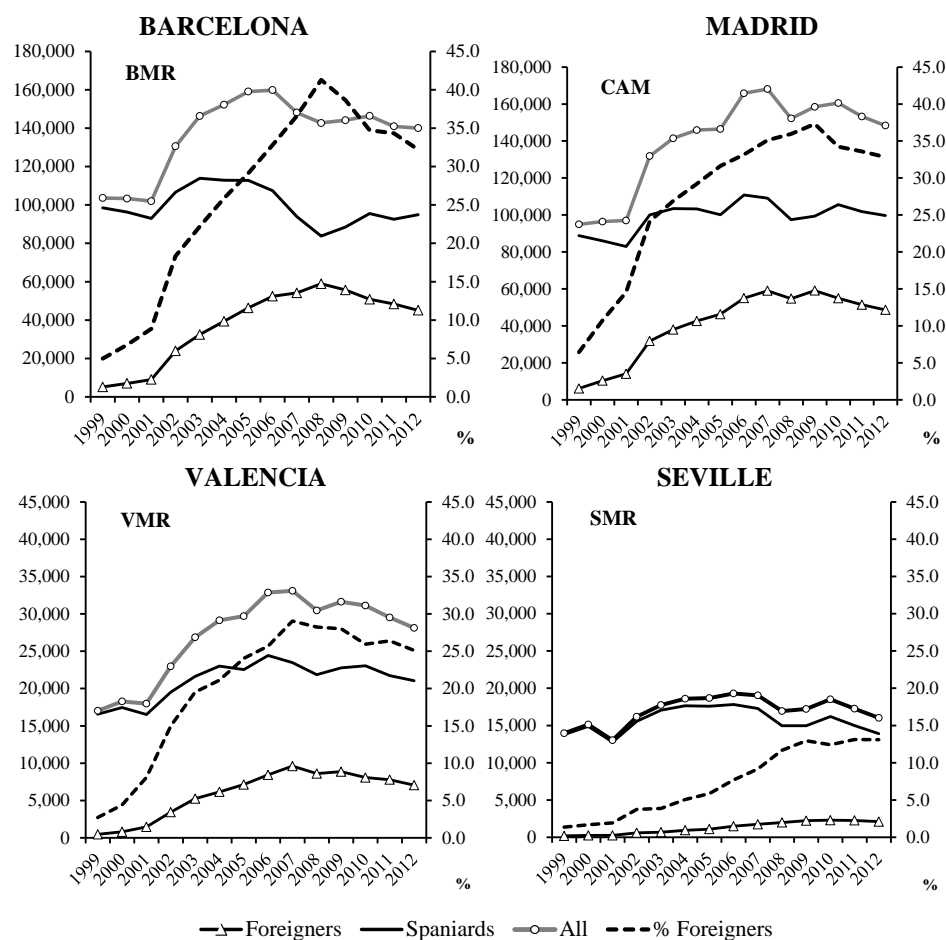
Despite the economic crisis, the number of intra-metropolitan residential moves has not decreased as much as would be expected. The decrease between the pre-crisis maximum and the most recent minimum has been 11.8% and 11.9% in Barcelona and Madrid, respectively, and slightly greater, 15.1% and 17%, in Valencia and Seville. Therefore, residential mobility appears to have proportionally decreased more in smaller, less mature metropolitan areas than in larger ones.

As foreigners have made up a significant part of intra-metropolitan migration flows—for example, in 2008 more than 40% of the moves in Barcelona were carried out by foreigners—nationality is another issue that needs to be addressed. Spaniards' residential mobility levels increased from 2001 up until 2003 in Barcelona and up until 2006 in Madrid, Valencia, and Seville (Figure 4). Therefore, the residential mobility of natives reached its maximum level before the economic crisis began. Extremely high housing prices owing to the real estate bubble could explain this. Since reaching these maximum levels, Spaniards' intra-metropolitan flows have decreased, falling by 28% in Barcelona between 2003 and 2008, by 12% in Madrid, by 22% in Seville, and by 14% in Valencia. However, intra-metropolitan residential mobility has started picking up in certain areas, such as in Barcelona—where it increased by 10% between 2008 and 2012—though in other areas, like Madrid, it has remained at similar levels.

However, foreigners show very different mobility patterns from those of Spanish people. Their residential mobility grew continually and rapidly up until 2007 in Valencia, 2008 in Barcelona, 2009 in Madrid, and 2010 in Seville. This increase in foreigners' mobility was then abruptly interrupted by the economic crisis, and the numbers began to decrease, though always after this trend had occurred for the Spanish-born population. This decline in immigrant moves had a very significant impact on overall metropolitan migration rates, as a considerable part of the moves—a maximum percentage of 41.3% in 2008 in the Barcelona Metropolitan Region, 37.3% in 2009 in Madrid, and 29% in 2007 in Valencia—were made by immigrants. Seville was an exception, as non-nationals accounted for only 13.1% of the moves in 2009.

As can be seen in Figure 4, after peaking, foreigner residential mobility sank, showing no sign of reversing this trend. It dropped by 25% in the Barcelona metropolitan area, by 19% in Madrid, by 30% in Valencia, and, to a lesser degree, by 13% in Seville. In fact, in the first three cases, residential migration fell more for foreigners than it did for Spanish people. However, in Seville, the opposite situation occurred. In the first three metropolitan areas, the reduction in numbers could, to a certain extent, be justified by the lack of new flows coming from abroad. Yet, in the case of Seville, figures have not

diminished as much because in more recent years, foreign immigrants from other provinces have been moving to the area.



**Fig. 4** Intra-metropolitan moves by nationality, 1999-2012 (absolute numbers, left axis; proportion of moves made by foreigners, %, right axis). *Source: 1999-2012 EVR microdata, INE.*

Intra-metropolitan migration rates have also declined much less than expected as an effect of the economic crisis. However, crude migration rates are affected by changing age structures. For this reason, we have calculated—both for the economic expansion (2005-2008) and crisis (2009-2012) periods—the total residential mobility rates (TRMR, see Table 1). This indicator allows mobility intensity to be analysed without population structures interfering. Apart from indicating that the four areas generally have low mobility levels, results also reveal some interesting nuances that should be taken into account. The rates for Barcelona and Madrid are relatively higher, while the rate for Seville is much lower. Nevertheless, the rates have undergone similar changes between the two periods analysed, with Valencia being the city where the rate falls the least (-3.8%), and Seville being the place where the rate falls the most (-8.8%). Therefore, these figures seem to confirm that the economic crisis has only involved slight decreases in the intensity of residential mobility.

**Table 1.** Total Residential Mobility Rates by period, 2005 to 2008, and 2009 to 2012. *Source: 2005 to 2012 EVR, and 2007 and 2011 Padrón, INE.*

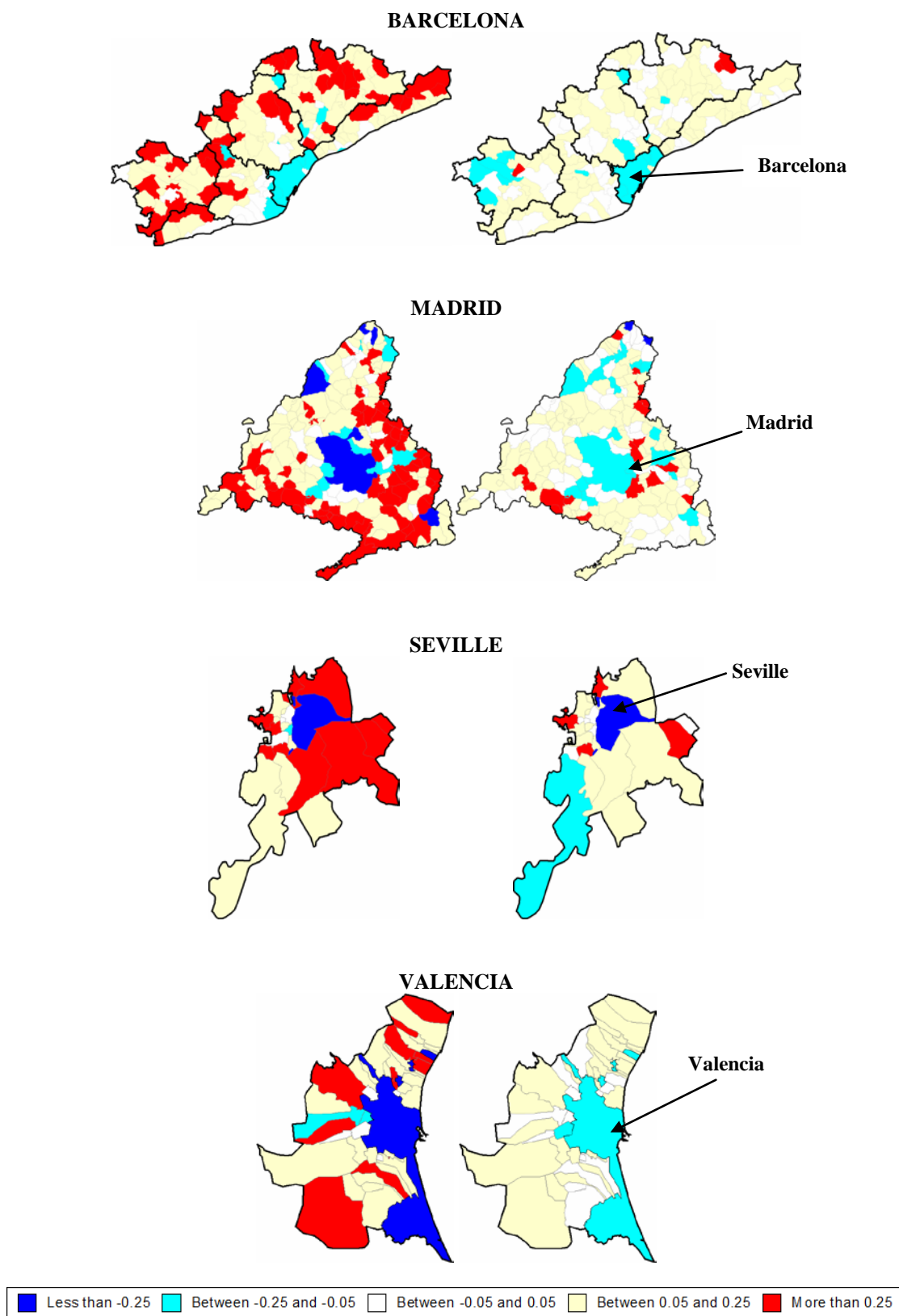
	2005-2008	2009-2012	Relative Decrease
Madrid Metropolitan Region	2.00	1.88	-6.2%
Barcelona Metropolitan Region	2.42	2.25	-7.0%
Seville Metropolitan Region	1.14	1.04	-8.8%
Valencia Metropolitan Region	1.60	1.54	-3.8%

Given the depth of the economic crisis and the extent to which the real estate market has plummeted, the intensity of residential mobility has not been affected as much as expected. However, spatial patterns have substantially been altered. On one hand, core cities are losing less population as a result of intra-metropolitan migration than they were before the crisis. On the other hand, peripheral municipalities are receiving less internal immigrants, and some of these towns even have negative net migration rates. This pattern is particularly the case for municipalities situated in the most distant suburban areas, which had only recently been incorporated into metropolitan dynamics because of high housing prices in central areas. In other words, the first municipalities to be touched by the crisis were the last peripheries that had gotten involved in metropolitan migration. Once core city housing prices went down—and transportation costs increased—the most peripheral municipalities lost their attractiveness as places to which to move.

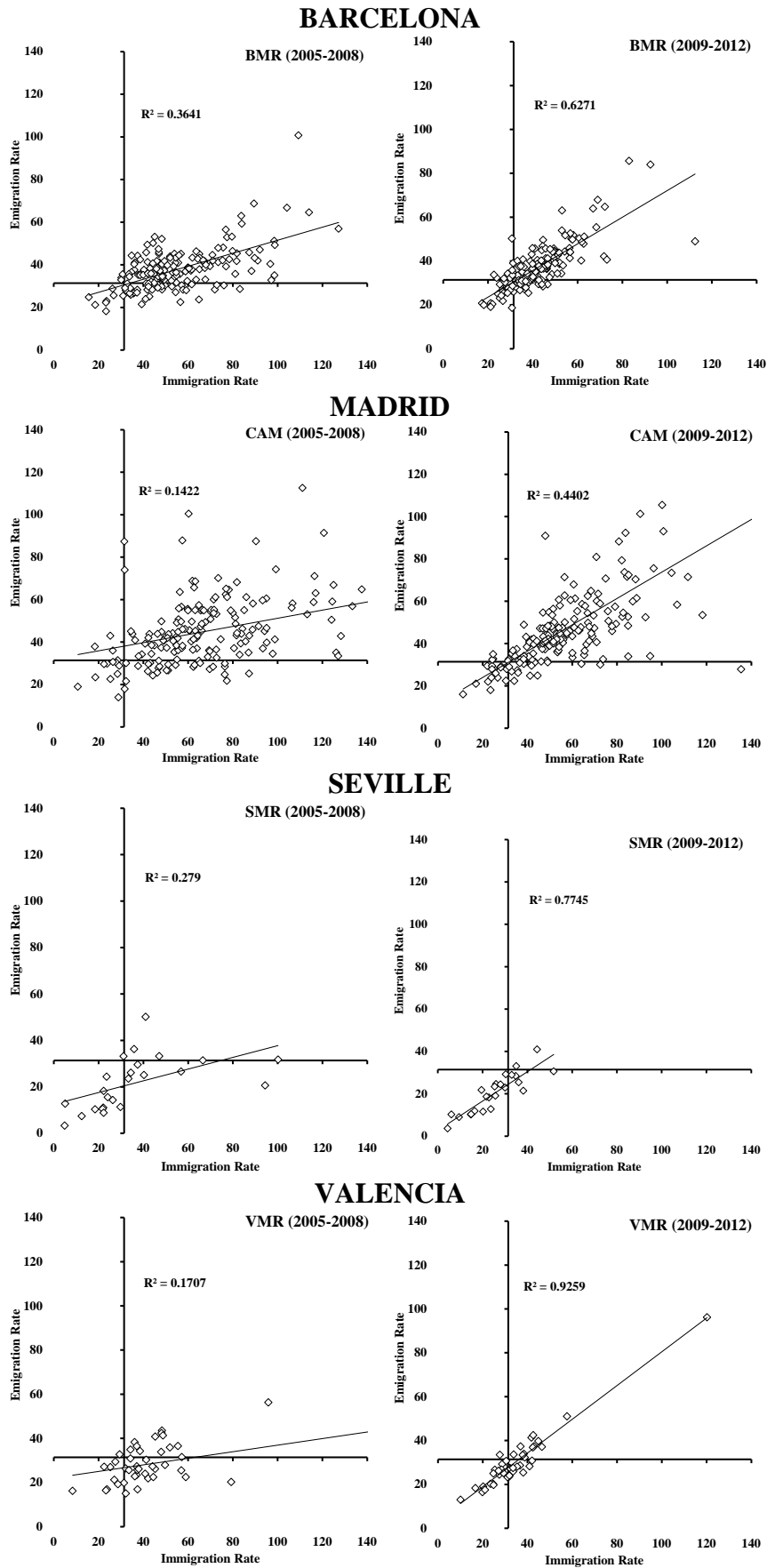
The Migration Effectiveness Index (MEI), which was explained in this paper's methodology section, shows these trends (Figure 5). When the two time periods are compared, it can be observed that extreme values (high immigration and high emigration) fall, particularly those corresponding to the most attractive municipalities. While between 2005 and 2008, many municipalities situated far away from the core city could be included in the high immigration category, in the following period they become a minority. In fact, municipalities that have an MEI above 0.25 fall from 134 in 2005-2008 to only 25 in 2009-2012, while those with negative values increase from 34 to 41. However, the type of municipality that grows the most, increasing in number from 52 to 123 municipalities, is that in which there is a greater equilibrium between immigration and emigration (i.e., an MEI between 0.25 and -0.25). The Valencia and Barcelona metropolitan regions best demonstrate how extreme values have fallen and how previous spatial mobility patterns have become blurred, whereas some of Madrid's and Seville's municipalities continue to attract migrants.

Extreme net migration values disappear from most municipalities as a result of immigration and emigration rates becoming increasingly similar. As observed in Figure 6, between 2005 and 2008 most municipalities had higher immigration than emigration rates, and among the latter, spatial variations were small.

However, in the following period, 2009 to 2012, immigration rates fell, while emigration rates remained quite stable, therefore suggesting that in more recent years these two rates have become interdependent. This observation is confirmed by the much higher determination coefficients,  $r^2$ , in the second time period than in the first. Additionally, it should be noted that the highest  $r^2$  are found in the smallest metropolitan areas, Valencia and Seville.



**Fig. 5 Net Migration Effectiveness Rate, Barcelona, Madrid, Seville, and Valencia Metropolitan Regions, 2005 to 2012.** Source: EVR and Padrón, INE.

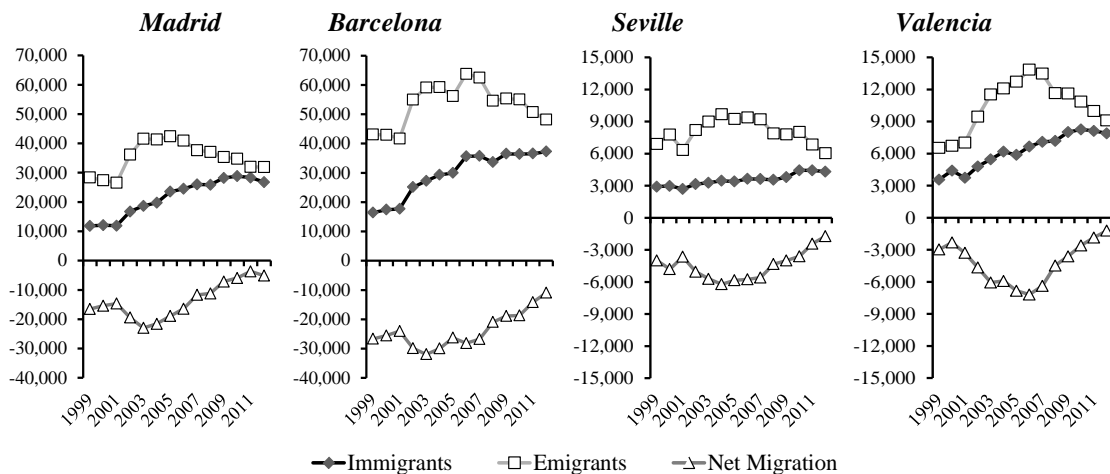


**Fig. 6 Crude Immigration and Emigration Rates by Municipality, 2005 to 2008, and 2009 to 2012.**  
*Source: 2005 to 2012 EVR and Padrón, INE.*

*Core cities as a specific case*

Core cities have played a central role in contemporary metropolitan population redistribution towards the suburbs. Though this tendency began in the 1970s, it has more recently been strengthened and perpetuated by cities becoming places where incoming foreign-born population is redistributed. However, as population has spread throughout the metropolitan region, cores have become increasingly less important. This deconcentration, which first started in the 1970s in Barcelona, was later apparent in Madrid and then in Valencia and Seville. Nevertheless, after decades of urban sprawl, in the 21<sup>st</sup> century, and increasingly so after the arrival of the economic crisis, core cities have been experiencing a reduction in their population loss, which had been caused by intra-metropolitan migration away from urban cores; what now appears to be occurring in core cities is an emerging recentralisation process.

Figure 7 shows migratory flows between the four cities and their peripheries. As can be observed, the number of emigrants from city centres towards the suburban municipalities is diminishing—since 2005 in Seville, 2006 in Madrid, and 2007 in Barcelona and Valencia—while the number of migrants moving from the metropolitan periphery to core cities is increasing, since approximately 2001. Therefore, net migration, which is always negative for the four cities analysed, is presently progressing towards zero. Indeed, López-Gay (2014) claims that the phases in which metropolitan cores lose population will come to an end because of both recent migration trends and the population structure of core cities, the latter of which is characterised by a large number of households with elderly persons, which in the future will be transformed into an extra supply of housing.



**Fig. 7** Number of immigrants, emigrants, and net migrants between core cities and their metropolitan areas, 1999 to 2012. Source: 1999 to 2012 EVR microdata and Padrón, INE.

*Barcelona and Madrid, the more mature metropolitan areas*

Finally, Barcelona and Madrid, the two largest metropolitan areas, are analysed in greater depth, using municipality size to explore these areas’ intra-metropolitan migration flows and corresponding spatial patterns. For this purpose, immigration, emigration, and net migration rates have been used, grouping municipalities into six size categories.

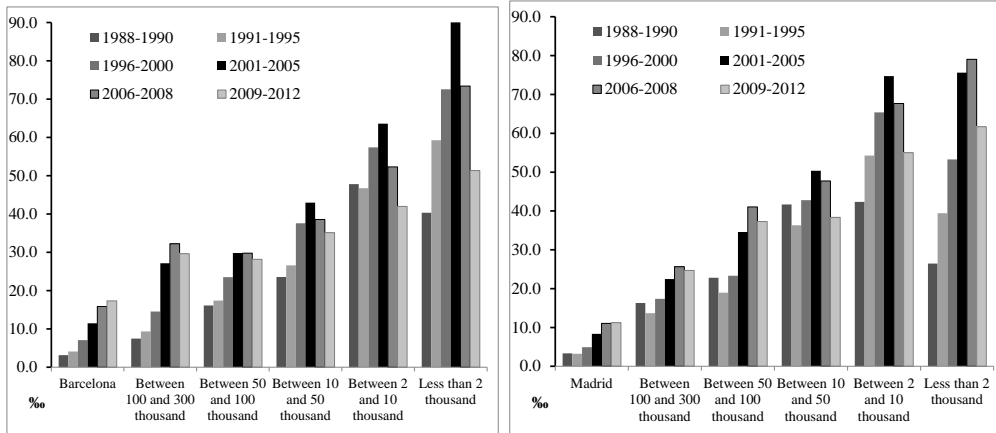
As Figure 8 shows, the results from the economic crisis period clearly stand out from the rest, and this is true both for Madrid and Barcelona. For the first time in more than two decades, immigration rates fall practically everywhere, though emigration ones drop somewhat less. Therefore, net migration rates are quite low.

In the Barcelona Metropolitan Region, for municipalities under 100,000 inhabitants, immigration rates reached a maximum level in the 2001-2005 period. As observed in Figure 8, the smaller the population size, the higher these rates peaked. However, in towns between 100,000 and 300,000 inhabitants, rates increased until 2006-2008, and decreased thereafter. Finally, in the city of Barcelona itself, immigration rates do not stop growing, reaching the highest level in 2009-2012. Additionally, it is in this last period when small municipalities become much less attractive.

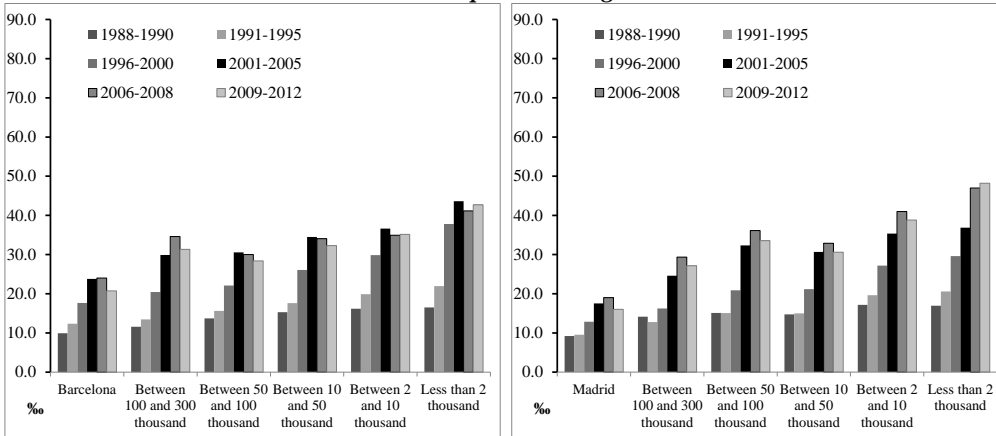
**BARCELONA**

**MADRID**

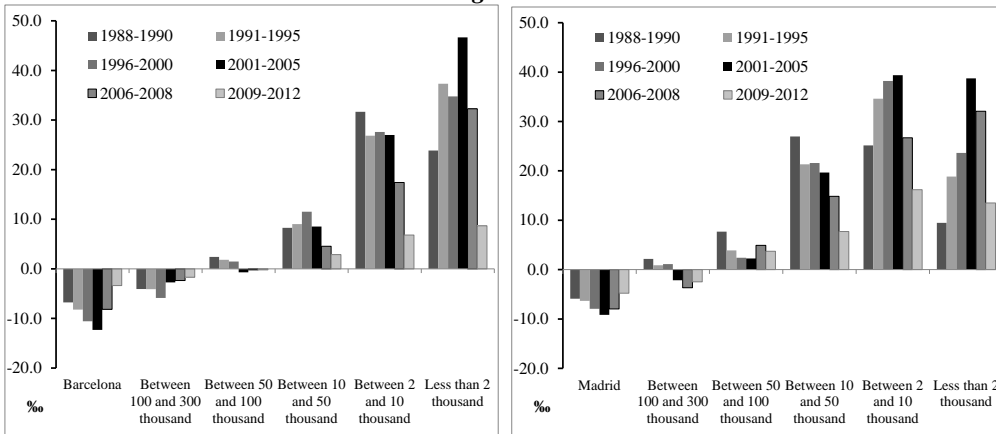
*Intra-metropolitan Immigration Rate*



*Intra-metropolitan Emigration Rate*



*Net Migration Rate*



**Fig. 8** Intra-metropolitan immigration, emigration, and net migration rates by municipality size in Barcelona and Madrid metropolitan areas, 1988 to 2012. *Source: 1988 to 2012 EVR and Padrón, INE.*

With respect to emigration rates, they follow the opposite trend. Between 2009 and 2012, they slightly decrease in the largest municipalities while they remain stable in the smallest ones. Hence, net migration rates, which up until the 2001-2005 period had been increasingly negative in large municipalities and clearly positive in the smallest ones, are more balanced. As a consequence, Barcelona and towns above

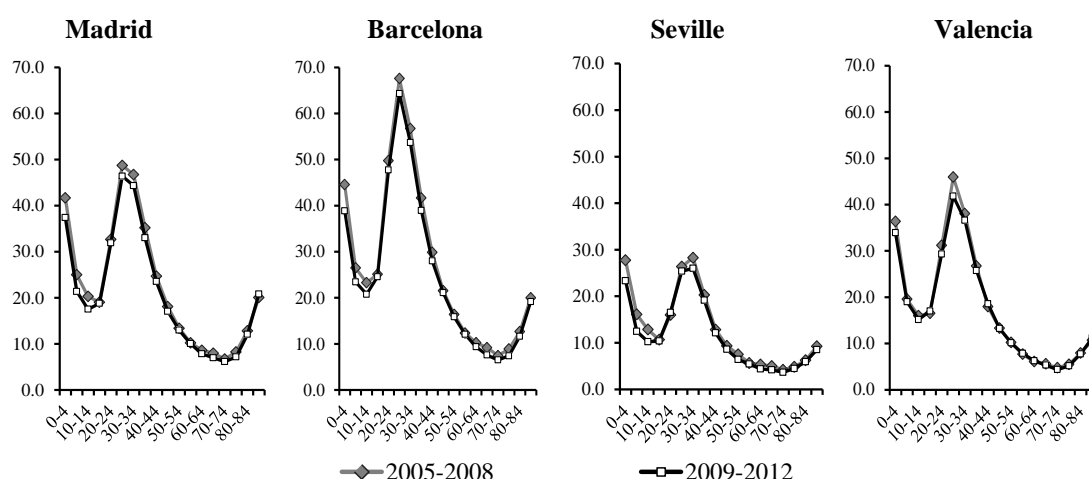


100,000 inhabitants lose the smallest amount of residents since 1988, while the small municipalities have net migration rates just below 10 per thousand.

The case of the Autonomous Community of Madrid is quite similar, though some of the formerly identified processes occur slightly later on.

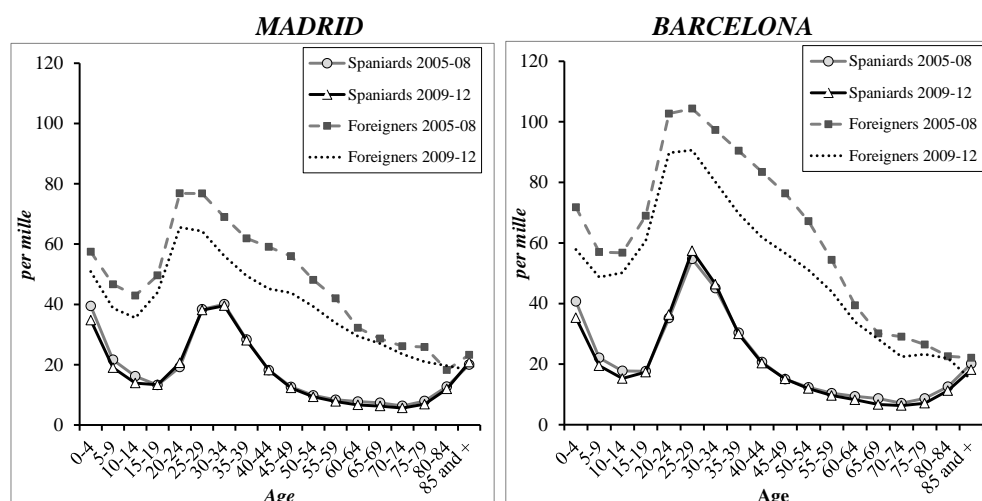
### THE DEMOGRAPHIC STRUCTURE OF INTRA-METROPOLITAN MIGRATION

Despite significant changes in the spatial distribution of intra-metropolitan migration with respect to trends of former decades, the age structure of this type of migration has barely varied. During the periods of economic growth (2005-2008) and economic crisis (2009-2012), the age curve is practically the same, so residential mobility by age has only experienced small decreases. As observed in Figure 9, this finding is applicable to the four metropolitan areas.



**Fig. 9 Age-specific internal mobility rates of the four Spanish metropolitan areas, 2005 to 2008, and 2009 to 2012.** Source: 2005 to 2012 EVR, and 2007 and 2011 Padrón, INE.

However, in Madrid and Barcelona, the age-specific rates do show significant differences according to nationality. Figure 10 confirms what was already known from crude rates—that foreigners have significantly reduced their intra-metropolitan residential mobility during the economic crisis.



**Fig. 10 Age-specific internal mobility rates by nationality in the Madrid and Barcelona metropolitan areas, 2005 to 2008, and 2009 to 2012.** Source: 2005 to 2012 EVR, and 2007 and 2011 Padrón, INE.

Regarding Spanish nationals, mobility rates only slightly fall between the two periods, though this decrease can, in particular, be clearly observed among the youngest age groups (individuals under 15 years old)—that is, among children moving with their parents. This type of movement involving families

moving from Spanish core cities to less densely populated peripheries had been associated with having greater access to single-family home ownership. Therefore, it could be claimed that the economic crisis especially affected certain types of movers, such as families with children. By contrast, residential mobility rates for other young age groups have remained the same or have even increased, particularly for 25 to 29 year olds living in the Barcelona Metropolitan Region. It could be speculated, therefore, that the real estate boom and the high housing prices it involved just prior to the economic crisis may have been, at least for younger first-time home-buying age groups, a greater obstacle to changing residence than the economic crisis itself. Yet, proving this argument would mean going far beyond this paper's scope and the available tools of analysis.

Graphs on mobility rates by sex have not been presented in this paper, as there are only minor differences between men and women in both time periods.

## DISCUSSION AND CONCLUSIONS

After decades during which urban deconcentration and suburbanisation dominated growing residential mobility, intra-metropolitan movements are presently being redefined. Though the economic crisis has undoubtedly played a role in these changes, metropolitan mobility had already started to fall during the housing boom years. In other words, several years before the economic crisis started, Spanish nationals were already moving less, though the growing involvement of foreigners in suburbanisation mitigated (and covered up) these underlying trends. However, the magnitude of the economic crisis ultimately led overall mobility, and particularly that of foreigners—the only type of mobility that grew in the final economic boom years—to decrease.

In the case of foreigners, this declining mobility has been directly related to a reduction in the number of newcomers to Spain, particularly persons of working age, as immigrants now arriving are mostly people involved in family reunification. Considering that migrant entries from abroad have fallen, immigrants' redistribution within urban areas has, unsurprisingly, also declined, partly explaining why foreigners' metropolitan moves have decreased by 19% in Madrid, 25% in Barcelona, and 30% in Valencia. Seville is the only exception (with a substantially lower decrease of 13%), as during the economic boom years, it did not act as one of the country's major gateways for newcomers. In fact, it was not until very recently that the number of foreign arrivals to this region began to dwindle slightly.

When looking at the results for Spanish nationals, we face the paradox that the economic crisis seems to have had little effect on their intra-metropolitan mobility intensity. Moreover, their mobility rates peaked in 2005 or 2006 (depending on the city), that is, several years before the impact of the Great Recession on the housing market became obvious. These results indicate that though the temporary mobility effects of the economic crisis on Spanish nationals have not been that severe, the last of the property bubble years—when housing prices skyrocketed—not only did not stimulate residential mobility, but actually became an obstacle to it. Currently, movement among youth seems to be starting to rise again, possibly as a consequence of changes to the housing tenure system, namely rental expansion—changes that are likely directly related to the economic crisis. However, this hypothesis needs to be confirmed using country of birth data, as there have recently been numerous naturalisations among foreigners; in other words, the higher mobility of foreign-born people—some of whom are now holding Spanish nationality—could partly be compensating for Spanish-born people's lower mobility.

Nevertheless, the four metropolitan areas have not behaved in exactly the same way. While intra-metropolitan residential mobility flows started to decrease in the Barcelona area during the housing boom years and lately seem to be picking up, in Madrid this drop in mobility occurred slightly later, and the rates are presently stagnant. As for the other two urban areas, residential mobility in the Valencia and Seville metropolitan regions shows no signs of increasing again.

Comparing the four metropolitan areas, we can conclude that Barcelona and its metropolitan region anticipate what later occurs in the other three urban areas, probably as a consequence of Barcelona's more consolidated metropolitan structure, its multiple urban sub-centres, and its early suburbanisation. Therefore, if Barcelona's patterns can be extrapolated to the three other metropolises, mobility should shortly start to grow among Spanish nationals in the other three places.

With respect to core cities, recentralisation would seem to be the following step. The year 2012, the final year covered by our data, has been the one in which intra-metropolitan migration growth has been the least negative for the four cities. While exits are diminishing, the number of entries is slightly increasing. This new ability of core municipalities to attract migrants could be related to the cities' larger supply of rental housing, their lower living and transportation costs, and their larger and more diversified labour markets. If these factors were the main reason for these recentralisation patterns, we could interpret

these changes in mobility to be a consequence of the economic crisis—and anticipate that their effects would be temporary.

Instead, it could be argued that recentralisation patterns are more structural in nature and are ultimately a consequence of the so-called ‘Second Demographic Transition’, a theoretical framework that aims to explain the increasing importance of certain demographic behaviours, such as single living, pre- and post-marital cohabitation, delayed fertility, the high prevalence of non-marital fertility, and high rates of union disruption (Van de Kaa 1987; Lesthaeghe 1995). Evidence shows that in developed countries, large cities, in addition to attracting foreign immigrants, are currently attracting some of the emerging household forms linked to the Second Demographic Transition, whereas young adult couples with children continue to be attracted to the suburbs (Rérat 2012). If urban core population growth were to be related to these demographic changes—in other words, to the societal expansion of one-person, single-parent, childless couple, or non-family households—then cities would have a positive growth rate even if the economic crisis came to an end.

However, it should also be kept in mind that despite these emerging recentralisation trends, core cities continue losing population, as a result of both ageing population and migration to non-metropolitan areas and abroad.

It is important to stress that this article’s results need to be interpreted with caution, as the economic crisis has had a much wider territorial impact, obscuring the spatial residential mobility trends that existed before 2008. After decades of strong suburbanisation and decentralisation processes, metropolitan cores are now losing fewer inhabitants and virtually have zero growth. Nevertheless, this change is not only attributable to a decrease in the number of exits but also to a loss of interest in peripheral urban areas for the above-mentioned reasons. Therefore, the suburban growth model that dominated during the past few decades has come to an end, and we are presently facing a new and not yet clearly defined metropolitan development phase. Not enough time has elapsed to know whether the current undefined spatial trends are temporary or whether they will become characteristic of a new stage.

We believe that current (post-2008) spatial mobility trends are chiefly being affected by the bursting of the construction bubble and the subsequent real estate market crisis more than by the economic crisis itself. As construction has come to a standstill, previously high-immigration municipalities, where new housing was continually being built during the real estate bubble, are now losing relevance. Moreover, an increase in the availability of rented dwellings—situated mainly in cities or large towns where housing prices have also gone down—in addition to present difficulties in obtaining mortgages, have inaugurated a new stage in which formerly attractive suburban municipalities are no longer desirable. Despite the fact that people are still changing residence within metropolitan areas nearly as often as they previously did, spatial patterns emerging from these new movements are not as clearly defined as they were before the economic crisis. In other words, more than directly affecting residential mobility intensity, the economic crisis seems to have primarily had an impact on dwelling construction and the housing market, which, in turn, have influenced settlement patterns, leading to reduced suburbanisation flows and increasing recentralisation.

In sum, it can be concluded that Spain has been affected by very intense economic cycles. During the economic boom years, high international immigration fed both strong suburbanisation and the demographic growth of core cities. Then, the magnitude of the Great Recession and its impact on foreigners ended the previous stage, allowing underlying urban and demographic dynamics—an ageing population and even population decline—to emerge and become future dominant features in Spain’s main urban regions. As we stated earlier, current (slight) mobility reduction is partly because of these underlying trends that are not linked to the economic crisis. For instance, young cohorts in Spain now entering the housing market for the first time, and who were born during the second half of the 1980s and in the 1990s, a low fertility period, are much smaller in number than their earlier counterparts born in the 1960s and 1970s, a relatively high fertility period in Spain. At the same time, there are less foreign immigrants arriving in large urban areas. The geographical impact of this forecasted decrease in mobility—that is to say, less young people and less foreign immigrants entering the housing market will probably result in less residential moves—has implications for urban planning and, particularly, for housing policy.

In terms of likely consequences, from a spatial point of view, suburbanisation, as we presently know it, will gradually weaken, whereas urban cores will probably even experience positive intra-metropolitan net migration. While intra-metropolitan moves can increase metropolitan spatial segregation and specialisation—as population redistributes according to people’s individual choices and characteristics—a decline in mobility and the blurring of territorial patterns (i.e., sending and receiving areas are now less clear, or at least more balanced, than before 2008) might lead to less metropolitan socio-economic imbalances in the near future. Moreover, expected mobility and ageing patterns might mean that in the near future less housing will be needed than in previous decades. Rehabilitation of the current housing

stock will grow more as a practice than the construction of new residential developments, a very relevant process from a housing policy point of view.

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