

DOES COHORT SIZE MATTER TO RESIDENTIAL MOBILITY? THE CASE OF BARCELONA'S CENTRAL CITY¹

LÓPEZ-GAY, ANTONIO
Centre d'Estudis Demogràfics
tlopez@ced.uab.es

MULDER, CLARA H.
University of Groningen
c.h.mulder@rug.nl

MÓDENES, JUAN ANTONIO
Universitat Autònoma de Barcelona and Centre d'Estudis Demogràfics
jamodenes@ced.uab.es

THIS IS A PRELIMINARY VERSION PREPARED FOR THE 2004 MEETING OF THE POPULATION
ASSOCIATION OF AMERICA

Abstract

Following up Easterlin's arguments about the impact of cohort size on demographic issues, the paper aims to explore the implications of cohort size in the specific context of residential mobility. The research is based on the case of the inner city of Barcelona. There are three elements that make this case study relevant. First, fertility decline was extraordinary fast in Spain. That produced big size differences among cohorts born within a short period of time. Second, the intensity of residential mobility in Spain is low and very concentrated in the household formation ages. This characteristic emphasizes the importance of cohort size in terms of competition: after members of large cohorts have moved they no longer cause a strong pressure on the housing market. And third, the territorial and the housing market characteristics of Barcelona's urban core. The urban fabric of Barcelona's inner city is extremely saturated and few units have been added to the housing market since 1970.

The paper looks for differences in patterns of residential behavior between baby-boom and baby-bust cohorts in two main aspects: the calendar of the residential movements and the territorial distribution within the Metropolitan Area of the individuals moving from the central city. According to the literature, large cohorts face greater competition than small cohorts in multiple aspects and the housing market is included among them. Thus, it is expected that boomers will move later and farther than smaller cohorts. The study relies on annual relocation data covering the period 2000-2010, which not only allow us to track the pathways of boomers and busters through the ages of higher mobility, but also to identify the impact of the economic crisis on their residential behavior.

Keywords: Urban Demography, residential mobility, cohort size, baby boom, housing demography, Barcelona.

¹ This research is performed in the context of the R+D project "Inmigración internacional y familia en España: trayectorias de pareja en perspectiva transnacional" (CSO2011-24544), which is led by Dr. Albert Esteve Palos (PI).

1. Introduction

1.1. Background: the effect of cohort size on migration and residential mobility

At the beginning of his popular book "Birth and Fortune: The Impact of Numbers on Personal Welfare", Richard A. Easterlin argues that cohorts born during the baby-boom period face a comparatively hard life, and on the contrary, individuals born during the baby-bust find it relatively simple (Easterlin RA, 1980:4). This statement was mainly based on the impact of cohort size in the labor market: due to the imbalance between labor supply and labor demand and to the competition among same cohort individuals, baby-boomers will struggle at labor market entry. This element has a negative impact on the final income of those generations. Implications of cohort size in the demographic behavior of the population have been discussed in recent decades. In the same reference, Easterlin states a delay at the age at marriage and a fertility decline among larger cohorts. Impacts of generational competition in terms of the housing market competition are also argued. According to the author, the increase in housing prices that the United States experienced during the seventies was boosted by the large size of the cohorts reaching the ages of accessing to property.

In Spain, larger cohorts (approximately born between 1965 and 1975) have recently crossed the ages of household formation, and hence the ages with higher residential mobility rates². In addition, the residential behavior at those ages of the small cohorts that followed the boom (in the case of Barcelona, births in 1982 represented 60% of the ones registered in 1975) can also be analyzed. Following up Easterlin's opening sentence, and in the context of residential mobility in Spain, what would a difficult episode mean to a young adult in Barcelona willing to move? Most of them would answer that hard means moving at a late age and moving into a very distant location. This research aims at analyzing the behavior of large and smaller cohorts in these two dimensions of residential mobility, the timing of the event and its territorial patterns.

There are some examples in the recent literature about the impact of cohort size in the calendar of migration and residential mobility. However, there are not many examples, and most studies rely in the context of United States. Pandit (1997) identifies that smaller American cohorts tended to move at very early ages, while larger cohorts are more likely to postpone residential and migratory movements. The negative relationship between cohort size and the intensity of residential mobility at young ages is also stated by Rogerson (1987) and Plane and Rogerson (1991), who highlights major impacts for those born at the tail of the baby-boom period. In the European context, Bengtsson (1991) shows that the decline in migration rates of Swedish young adults coincide with the arrival of large cohorts at those ages.

Regarding the territorial dimension, there are many contributions proving the connection between cohort sizes and housing market. However, there are very few studies approaching this

² Higher residential mobility rates in Spain are registered at late young adult ages.

relation from a strictly demographic point of view and even fewer including the territorial aspects involved in this process. This line of research is followed by Dowell Myers, who has introduced the concept of the generational housing bubble (Myers and Ryu, 2008), to define the episode that has been experienced in the housing market in the United States since the 70s. The 78 million U.S. baby boomers crossing the different stages of the life cycle triggered the residential housing demand and generated a strong increase in housing prices. In addition, it is argued that the urban processes that have been experienced in the last decades in the United States are linked to changes in the demographic structure of the country and to the moment that larger generations went through the various stages of their life cycle (Myers and Pitkin, 2009).

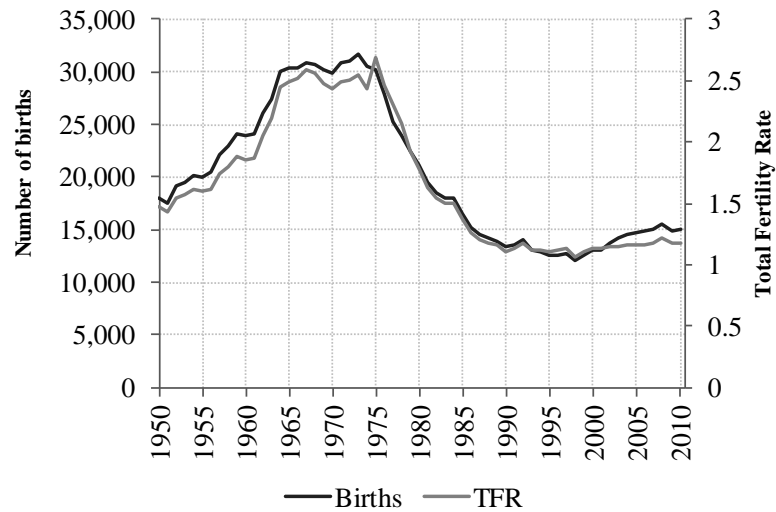
1.2. The singular case of the urban core of Barcelona

We argue that Barcelona's urban core is a singular place to test the effect of the cohort size on the residential behavior of the population. There are three components that allow us to defend this statement: (i) demographic reasons, (ii) the Spanish model of residential mobility and (iii) the urban and the housing market characteristics of Barcelona's urban core:

- (i) Demographic reasons: the intensity of the fertility decrease in Spain that followed the baby-boom period (approx. 1965-1975) was dramatic. It was especially intense in the area of Barcelona. The total number of births in 1982 in Barcelona's municipality³ represented the 60% of the births that were registered just 7 years ago, in 1975 (Figure 1). As a consequence, the extraordinary decrease in the number of births produced big size differences among cohorts born within a short period of time. Thus, the arrival of both cohorts at household formation ages happened with just a small delay, which means that the risk of variation of many contextual characteristics related to the change of residence itself is minimized (residential preferences, housing market structure, road and transportation networks, legislation...).

³ The area of analysis in the research is the central municipality, which we consider the equivalent to the central city or the urban core.

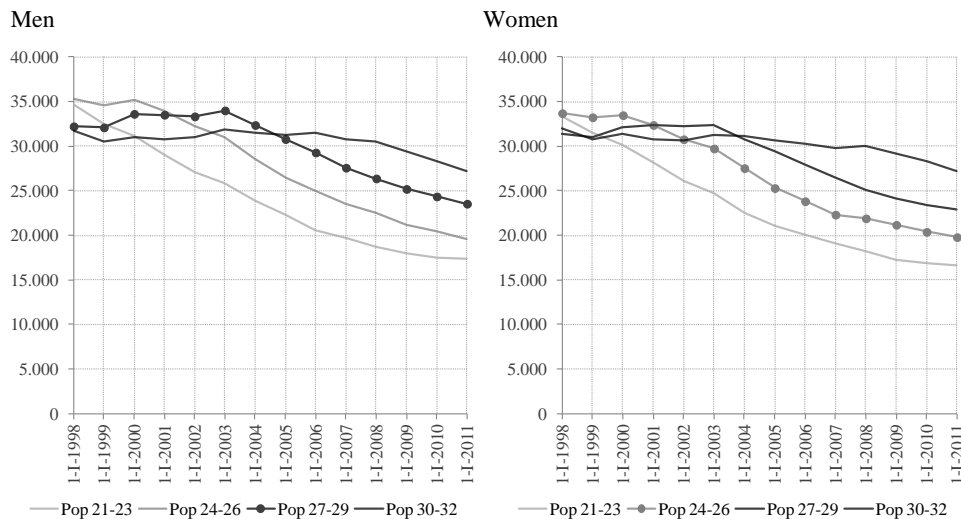
Figure 1. Number of births and Total Fertility Rate (TFR) in the municipality of Barcelona, 1950-2010



Source: Anuario Estadístico de la Ciudad de Barcelona (1950-1975), INE (1975-1985) and Idescat (1985-2010)

The arrival at ages of household formation (which in Spain is very late, as it will be presented in the next point) of the larger cohorts at the tail of the baby boom and the small cohorts born in the early 1980s has occurred during the decade of 2000. Figure 2 shows the evolution of the population by age groups during the decade (the groups of maximum residential mobility are highlighted with a mark). Large stocks of population were crossing the ages of higher mobility rates during the first half of the decade, while the arrival of small cohorts at these ages caused a remarkable decrease of population on these age groups during the second half of the decade. Moving from this population perspective into a housing market approach, it seems clear that the decade of 2000 has known two differentiated episodes in terms of housing demand.

Figure 2. Evolution of Spanish nationals crossing the ages of maximum mobility rates in the municipality of Barcelona by sex and age, 1998-2011



Source: Population Register (INE).

- (ii) Residential mobility patterns and the life cycle: Spaniards move few times during their life and most of the residential changes are concentrated in a small range of ages (López-Gay, 2004). This characteristic emphasizes the importance of cohort size in terms of competition: after members of large cohorts have moved they no longer cause a strong pressure on the housing market. This attribute makes the Spanish residential system remarkably different to the ones in other European countries or in North-America, where the average number of residential changes during a life is much higher. Thus, in these other countries, members of different cohorts could be producing simultaneously a strong pressure into the housing market.
- (iii) Urban and housing market characteristics: the urban fabric of Barcelona's central city is mature and extremely saturated. It has added relatively few units to the housing stock during the last decade (the 85% of the city's housing stock was built before 1970). In addition, Spaniards intend to move to nearby locations in order to maintain social and family networks (Módenes, 1998). The arrival of the baby-boomers at household formation ages increased the demand in an area where housing supply has traditionally been scarce, an area that was already very selective and competitive (Cabré y Pujadas, 1982; López-Gay, 2008).

2. **Data and methodology**

The current research combines data from the Spanish Register of Residential Movements, produced by the Spanish Statistical Institute, and the Municipal Register of Residential Movements, produced by the municipality of Barcelona. Both sources cover the period 2000-2011. The first one is probably one of the world's most reliable sources of information tracking residential changes. It registers all the residential movements crossing municipal borders in the entire territory of Spain. It recollects the information from an administrative database where individuals must register each time they conduct a residential change. Besides the municipalities of origin and destination, the microdata dataset provides the migrant's basic demographic information. In order to have the full picture of the residential mobility, the database of residential movements within the municipality of Barcelona has also been included in the study.

The combination of both sources is essential to carry on the territorial analysis of the research. The analysis of residential mobility in Spain has traditionally based in the census data or in the Spanish Register of Residential Movements only (Ródenas and Martí, 2005), but there are recent studies that have used the database of the Barcelona's city council (Bayona and Pujadas, 2011). The combination of these two sources involves the assumption of certain risks related to the fact that the management and depuration of the information is developed by two different institutions. Moreover, it is not clear that the probability of an individual to report a residential change is the same when no municipal border is crossed. Still, beyond the overestimation or underestimation of the flows included

in each data source (which would impact on the final intensity of the studied dimension), we are particularly interested that the criteria for each source have remained stable over the studied period, which will allow us to observe trends on the territorial preferences of Barcelonians when they change residence. In that sense, we remark that both sources are straightly linked to the same register, the Spanish Population Register, which provides the same methodological protocol to both institutions.

In order to analyze the residential behavior of the different group of cohorts regarding the two dimensions presented previously, the calendar of the residential mobility and the territorial approach, we reconstructed the age specific mobility rates for cohorts born between 1966 and 1985. Taken into account that the period of study is 2000- 2010, we can only track the first cohorts of baby-boomers during their thirties, while we can only observe the individuals born after 1980 till their late twenties. However, the period is large enough to compare the residential behavior of the tail of baby-boomers and the early baby-busters at the ages of household formation. In this research we have only compared the mobility patterns of the Spanish nationals. Foreign nationals have a remarkably different residential behavior, which in addition is very heterogeneous among nationalities (Bayona and Lopez, 2011). Their inclusion in the study would hide the calendar patterns and the territorial relations of the Spanish population.

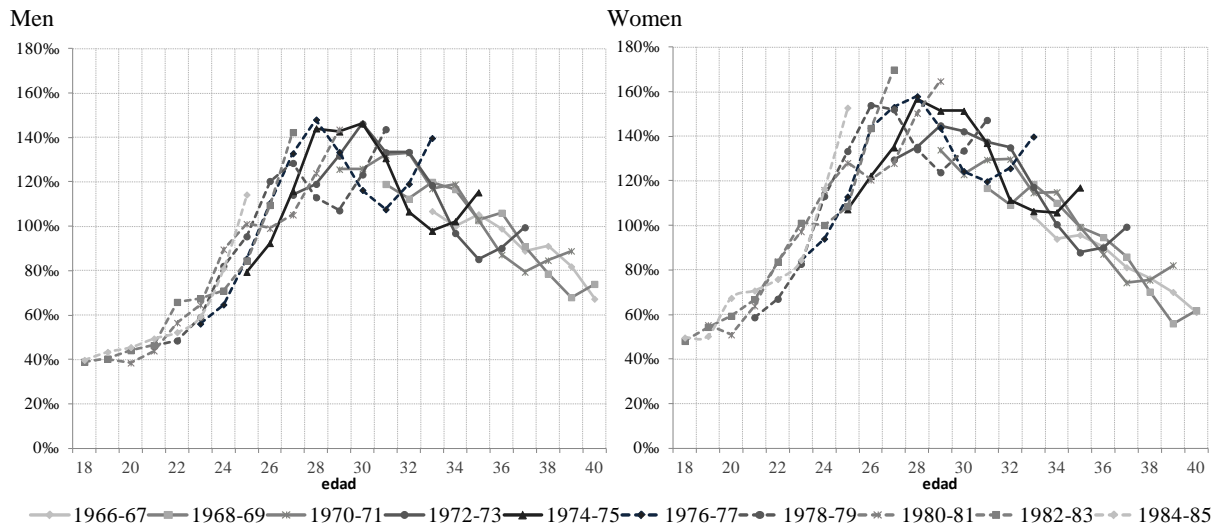
3. Are smaller cohorts moving earlier than the boomers?

According to the literature, individuals from large cohorts should have moved later than the ones born within small sized cohorts, as they faced bigger competition with members of their own cohorts in the selective housing market of Barcelona's urban core.

Results confirm that men and women born during the baby bust have moved earlier than the ones born during the baby-boom (Figure 3). The peak of residential mobility is achieved progressively at earlier ages when we analyze the younger cohorts. Men born in 1974-1975, for example, had a rate of residential mobility at age 27 of 115 ‰ (considering both intra-municipal and inter-municipal movements with a destination within the province of Barcelona). Members of the 1982-1983 cohorts, instead, showed a residential mobility rate of 145 ‰ at the same age. Results suggest that the greater intensity of residential mobility achieved at younger ages by the smallest cohorts is not due to a general increase of the intensity of residential mobility at all ages, but can be considered a result of a change in the calendar of mobility. A significant increase in residential mobility at younger ages by the cohorts born during the baby-bust is also stated. The baby-boom generations barely moved at this age range. Thus, men born at the tail of the baby boom, in 1974-1975, had a residential mobility rate at age 25 lower than 80 ‰; the ones born in 1978-1979 reached 100 ‰ and the rate for the 1984-1985 cohorts exceeded 115 ‰. Therefore, the rate at this age has increased almost 50% in only 10 years. The same arguments are stated for the female population: women born within smaller cohorts are registering the highest residential mobility rates at early ages. At the age of 25 years, women born in

1974-1975 had a residential mobility rate of 105 %, the cohort born in 1978-1979 achieved a rate of 135%, and the ones born in 1984-1985 almost registered a residential mobility rate of 160 %.

Figure 3. Residential mobility rates of the municipality of Barcelona (movements intra and inter-municipals with destination to the rest of the province) by sex and cohort, 2000-2010



Source: Spanish Register of Residential Mobility and Municipal Register of Residential Mobility of Barcelona's municipality, 2000-2010.

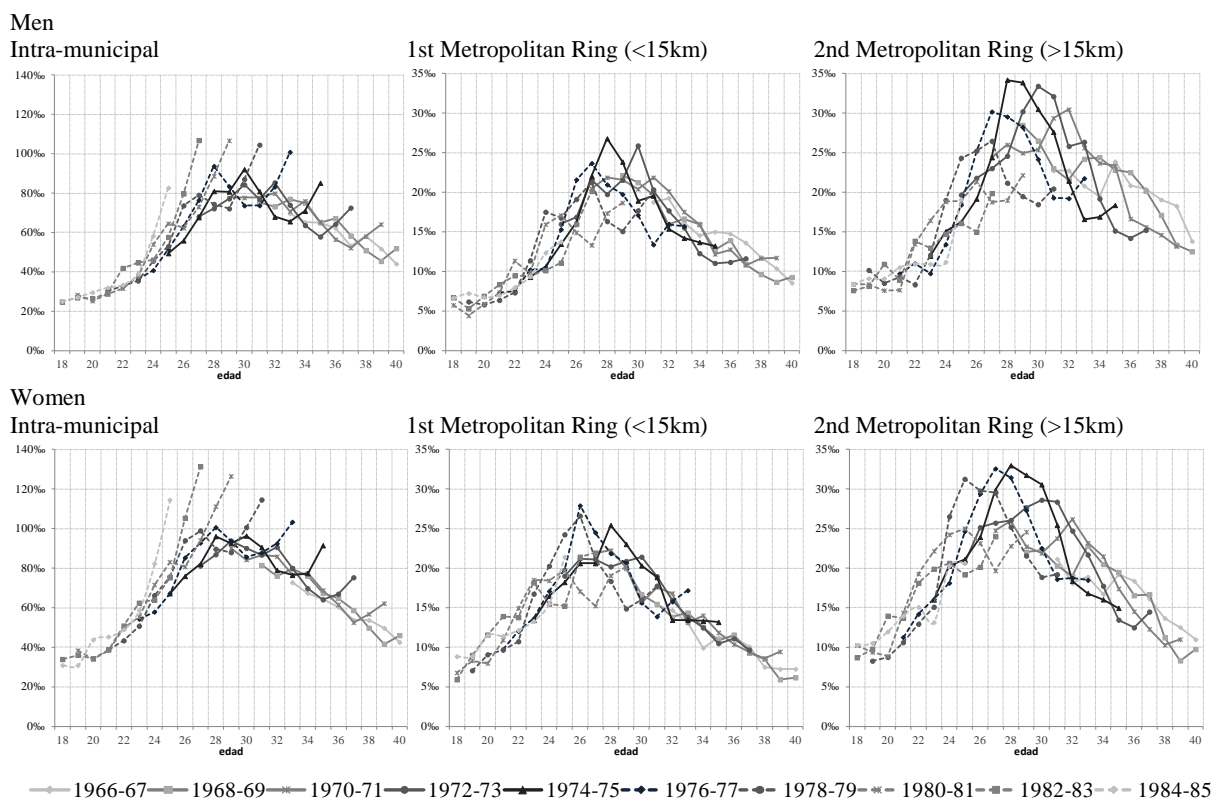
The effects of the economic crisis in the patterns of residential mobility are clearly stated in the graphs. A significant decrease in residential mobility in the years 2007 and 2008 is identified in all the studied cohorts. Even those who were about to reach the ages of higher residential mobility rates registered a remarkable decline, which was followed by two years of mobility rates recovery. Thus, for example, the rates for the cohort born in 1978-1979 fell from 130 % at the age of 27 years to 105 % at 29, and finally recovered to levels of 140 % when they were 31 years old. How the recovery of the residential mobility rates in 2009 and 2010, when the economic situation did not show a clear improvement, could be explained? Firstly, reasons related to the residential strategies of individuals could be argued, because residential movements cannot be postponed forever, especially when the change involves household formation, which in Spain are the great majority at this age. Secondly, the economic crisis itself has led to major changes in the housing market structure: (i) housing prices have experienced a significant reduction since 2008, a process consistent with the hypothesis of the generational housing bubble, discussed previously and (ii) the rental market has experienced a large increase in Barcelona in the recent years and has become a real alternative to home ownership. In just two years, between 2008 and 2010, the number of new rental contracts in Barcelona has been doubled.

There is no doubt that the period of economic crisis, with fluctuations in the levels of residential mobility and effects on the structure of the housing market, adds complexity to the interpretation of the results obtained from 2007 and to the comparison of the residential behavior of cohorts that have reached the ages of higher residential mobility during this period.

4. Did the boomers move to further locations?

If the hypotheses discussed above are followed, the large cohorts of baby-boomers will face more difficulties in the selective housing market of Barcelona, and the results should show a smaller permanence of them in the urban core when they start a residential movement. Moving out of the central city is of course a residential preference for some part of the population. We should inquire, however, to what extent the residents of Barcelona had to move out of the central city on a greater extent due to the pressure that the arrival of large cohorts at ages of household formation and higher mobility rates had produced on the housing market in the central city.

Figure 4. Residential mobility rates of Barcelona's municipality by sex, cohort and type of movement, 2000-2010



Source: Spanish Register of Residential Mobility and Municipal Register of Residential Mobility of Barcelona's municipality, 2000-2010.

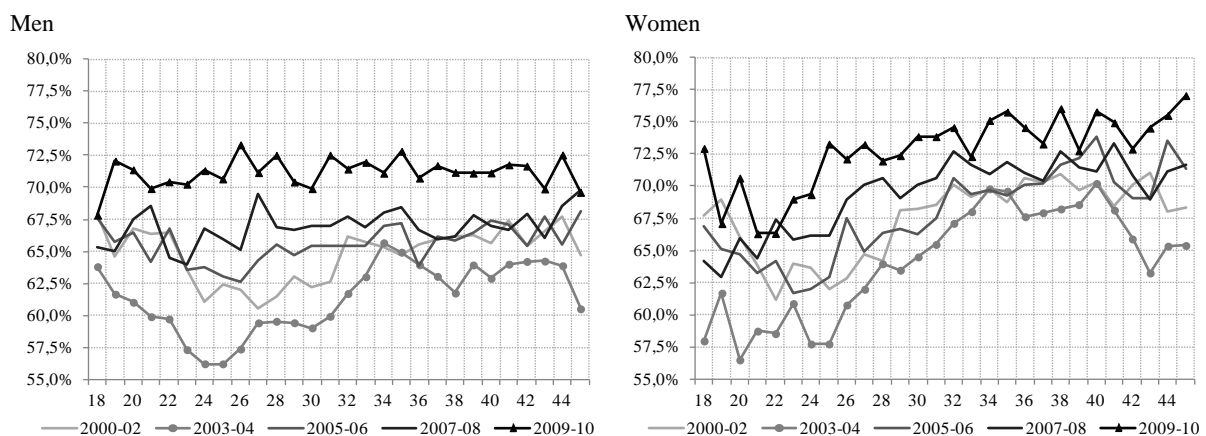
The cohorts born during the baby-boom have played a major role in the intense suburbanization process experienced in the last decades (Figure 4). These processes emerged during the sixties and seventies, but gained intensity during the eighties and nineties, mostly due to residential moves from the central city and the first Metropolitan Ring to more distant areas (Nel lo, 2004). Individuals born at the tail of the baby-boom have extended this dynamic during the first half of the 2000s. Thus, the cohorts born in 1974-1975 are the last ones registering a high level in the intensity of these movements with destination to the 2nd Metropolitan Ring. While the men of these cohorts conducting this type of movements reached a residential mobility rate of 34 % at age 29, those born in 1980-1981 had a

remarkably lower rate of 22 % at the same age. These types of movements heading into further places are the ones that registered the biggest decline. Movements from the city center to the nearest municipalities only experienced a slight reduction in the intensity of residential mobility when the cohorts born during the baby-bust arrived at household formation ages.

In contrast, intra-municipal residential mobility rates, far from experiencing a decline, as the inter-municipal did, registered a strong increase as fast as smaller cohorts reached the ages of higher residential mobility, especially in the case of the female population. The arrival of cohorts born during the baby-bust at ages of household formation, then, seems to be behind (i) the dramatic reduction of the suburbanizing flows, (ii) the higher proportions of movements that stays in the central city and (iii) the emergence of the back to the city movement (López -Gay, 2011).

All ages have increased the levels of movements staying in the central city since 2005 (Figure 5). It was in 2003-2004 when the proportion of movements that remained in the city of Barcelona reached the minimum levels. At this time, nearly half of the young adults aged 24-26, both men and women, starting a residential change in the central city crossed the municipal boundaries. Since 2005, coinciding with the arrival of the small cohorts at ages of higher mobility rates and, according to our hypothesis, with a decrease of the pressure to the housing market, these proportions increased significantly and registered the maximum levels during the last years of observation. In 2009 and 2010, more than 70% of the movements generated in the central city by young adults remained within the borders of the municipality.

Figure 5. Proportion of residential changes moving within the central city (out of all the residential changes with destination the province of Barcelona) by sex and age, 2000-2010

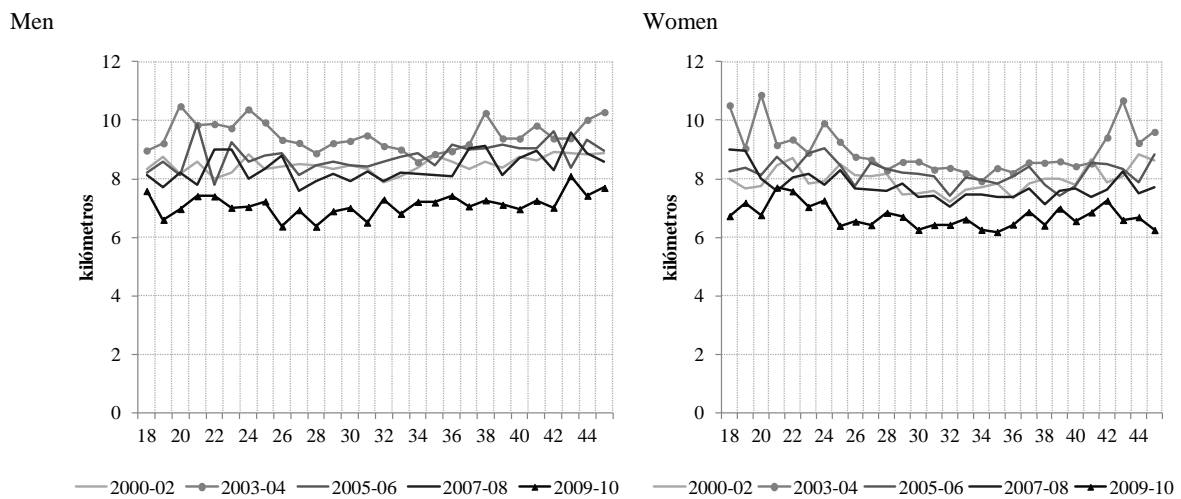


Source: Spanish Register of Residential Mobility and Municipal Register of Residential Mobility of Barcelona's municipality, 2000-2010.

The increase in the proportion of residential changes moving within the central city has the corresponding reduction of the average distance (in straight line) that the Barcelonians cover when they change residence within the province (Figure 6). These distances are calculated including as well

the itineraries made within the central city⁴. Young male adults initiating their itinerary in the period 2003-2004 in Barcelona covered on average 10km when changing residence; in the last period studied, 2009-2010, the distance reduced to just 6km.

Figure 6. Evolution of the distance covered in the residential movements starting in Barcelona's central city with destination the rest of the province (intra-municipal changes are included) by sex and age, 2000-2010



Source: Spanish Register of Residential Mobility and Municipal Register of Residential Mobility of Barcelona's municipality, 2000-2010.

5. Final remarks

The young Barcelonians that belong to small size cohorts, born mostly after 1980, are moving slightly earlier and into closer areas than their predecessors, those born during the baby-boom. These findings are consistent with the literature on the subject, which links the arrival of large cohorts at ages of higher residential mobility with a period of a high demand in the housing market and a big competition among members of the same cohorts. The Spanish central cities can be an excellent laboratory to test these hypotheses, since the fertility decline happened extremely fast and the Spaniards tend to concentrate their few residential changes during their life in a small age range. Thus, in the Spanish case, the evolution of the housing demand is closely associated with the arrival of the large cohorts at household formation ages. When dealing with a saturated central city like Barcelona, one can also analyze the territorial implications of the arrival of the large cohorts at the ages with higher mobility rates. With an increasing demand for housing in saturated central spaces, many individuals of these cohorts left the inner city.

Baby-boomers, therefore, have played a major role in the suburbanization processes that have prevailed in Spain during the last decades. On the contrary, it seems that the small cohorts that follow

⁴ For intra-metropolitan movements the straight line distances between the 10 districts of the municipality have been used.

the baby-boomers have opened the door to a new era where residential changes crossing the central city boundaries (especially those heading to the second metropolitan ring) are losing importance, and where the movements linked to re-urbanization processes are gaining it. In Barcelona, the proportion of residential changes moving within the central city has experienced a remarkably increase, the ones moving out of urban core have declined dramatically and the flows moving into the city from other metropolitan municipalities have increased.

But, is the size of the cohorts enough to explain the observed changes in the residential behavior of the population? It is probably not. Waiting for an explanatory model that incorporates other variables that may play a role in these patterns, it is pertinent to point out some elements that we believe are involved in these transformations. Although our results give an indication that some of the changes defended here were observed before the beginning of the crisis in 2007, there is no doubt that this new context has introduced major changes in the housing market in no time. The structure of the housing tenure has been modified after the crisis: for the first time in many years, renting is playing an important role in the Barcelona's housing market and has become a real alternative to home ownership. The housing prices have also experienced a significant decline, which has been able to influence the residential behavior of the population. Moreover, the coexistence with the crisis has changed residential strategies and decisions of many people. Another aspect that we have not addressed here is the role played by foreign nationals. In this case, it must be emphasized that their arrival and settlement increased tensions between supply and demand in the housing market on a period that coincides with the arrival at the ages of higher mobility rates of the baby-boomers. Finally, another aspect involving the relationship between demographic and housing market tensions should also be considered: the old age structure of the population living in the central city is causing the release of an increasing number of dwellings by mortality, an element that moderates the pressure to the housing market.

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