

EFFECTS OF THE ECONOMIC CRISIS ON EVERYDAY MOBILITY IN THE BARCELONA METROPOLITAN REGION

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I. INTRODUCTION

Spain was one of the countries in Europe most affected by the crisis. The international recession, originated in 2008, expanded quickly through global financial networks putting each and every economy of the European Union to a test. Peripheral economies such as Spain's, Greece or Ireland were highly affected. Many business strangled by the cut of credit lines from struggling banks went bankrupt causing huge losses of employment. Reduced consumption and tax income also affected governments, whose response in the form of austerity policies ended up accentuating the effects of the crisis over the quality of life of citizens.

One of the indicators that best measure the magnitude of the consequences of the crisis on daily life, is people's daily traveling. Travelling is used to get to and from daily activities which ends up reflecting citizen's everyday habits, routine choices and activity engagement. Despite the huge impact of the crisis and the importance of transport in everyday activities there has not been a significant body of analysis on how the economic recession has changed activity patterns and transportation habits among citizens in Spain.

In the international level the crisis has led to changes in the habits of the population, not only quantitative in nature -lower number of journeys, lower traffic volumes - but also qualitative -changes in the relative distance traveled; attitudes towards modes of transport, increased prevalence of personal mobility, rethinking of old habits of mobility-. This changes however have not been equal in terms of social and territorial areas. Consequences of the crisis have been highly unequal among socioeconomic groups, with the more vulnerable groups

being also the most affected. Territorial effects have also been highly heterogenic with spatial and social resilience determining the adaptation capacity of population groups to the crisis.

This study proposes a detailed analysis of the evolution of mobility, from 2004 to 2012, in various geographical areas of the metropolitan area of Barcelona. Using the EMEF series of travel surveys, it analyses how travel patterns have changed by the effects of the crisis, comparing the economic growth stage (2004-2007) with the stage of recession (2008- 2012). Also it distinguishes between occupational mobility (for work or study) and personal mobility (other reasons), as well as specific change trends detected in the metropolitan subareas that configure the RMB. The area of study includes territories with different socioeconomic and morphological characteristics, which enables us to detect which territories or groups have been most affected by looking at their daily mobility. It also allows us to display how the specificities of the different territories have affected the ability to adjust to changes, setting different strategies to adapt to the crisis.

II. METHODOLOGY

The study uses the 2004, 2007, 2010, 2012 editions of the EMEF survey. The survey is taken periodically as a joint initiative of the Department of Territorial Policy and Public Works of the Government of Catalonia and the Metropolitan Transport Authority of Barcelona, Spain. The aim of the surveys is to describe the mobility of the resident population in the Metropolitan Region of Barcelona. The survey is taken every year, employing a computer-assisted telephone interviewing (CATI) technique to interview a representative sample of the population. The total sample size ranges from 4642 in 2004 to a maximum of 6462 in 2012. Details were collected for every trip made by the interviewees the day prior to the interview. Through the EMEF we can also know a number of socioeconomic characteristics of the population.

The study uses descriptive statistics to compare some main mobility indicators through the eight year span between 2004 and 2012. This time interval is optimal to assess the trends in the economic expansion period (2004-2007) just before the start of the crisis. And also to assess the short and medium term impacts of the crisis (2007-2012). The study also compares the evolution of mobility indicators between metropolitan areas, splitting the Barcelona metropolitan region in three sub areas: Barcelona, the first metropolitan ring and the second metropolitan ring.

The selected mobility indicators are the total number of trips per day and per capita, the main purpose of the trip, modal choice of the trip and the average distances of the trips. Due to their purpose specificity, both modal choice and average distances are analyzed also by controlling for occupational or personal mobility. With the combination of this four main mobility indicators through the 8 years and the 3 areas of study we can assess some core changes in mobility patterns. For instance, the average number of trips and the trip purposes are indicators of activity engagement, and give relevant clues on how the crisis has affected everyday life structures. On the other hand, modal choices and average trip distances in each mode of transport relate to how the crisis has affected our transportation habits.

III. RESULTS

Trips per capita have been steadily augmenting in the Metropolitan region from 2004 to 2012. This is a common finding in most developed countries, and is frequently related with a generalized increase in mobility levels and miles traveled. This is a characteristic of our hypermobile society and the crisis has not affected the direction of this trend, although in some cases it has attenuated it. The RMB has seen an increase of 24% in the average trips per person during the crisis (2007-2012). This increase however has been territorially unequal, with Barcelona increasing the number of trips per day by 36% and the first and second metropolitan rings only by less than 22%. In terms of travel purposes, generalized unemployment has caused a reduction of 15% in occupational mobility, and this loss has been heavier in the second metropolitan ring (-18%). Through the extent of the crisis we can observe a double dynamic of a reduction of occupational mobility (-4.6% per year) compensated by a parallel increase in personal mobility (+7.2% per year). The balance in 2012 is that of 2,5 personal trips for every occupational one.

With respect to modal choice, the crisis has created a very clear transfer from motorized vehicles to active modes of transport. Active modes of transport increased their use by 8% on the RMB between 2007 and 2012. These changes however have been also unequal between territories and the changes have been more rapid in the second metropolitan ring. Due to the fact that modal choice depends in part on the purpose of the trip, our analysis also takes into account modal choice for occupational and personal purposes separately. The trend in occupational travel is that of changing modal choice between motorized modes. With occupational travel distances being significantly higher than personal distances, people are trying to save money by changing from private vehicles to public transport. In the case of personal travel people is abandoning motorized modes in favor of active modes of transport. This reconfiguration of modal choice also has an impact on travel distances, with occupational distances growing with the effect of the crisis and personal distances diminishing.

IV. DISCUSSION AND CONCLUSIONS

Mobility in the Metropolitan Region of Barcelona has undergone dramatic changes over the period 2007-2012 as a result of the economic crisis and its impact on the everyday life of people. There are, three potential adaptation strategies of mobility to deal with the crisis. On the one hand, to reduce the total number of daily activities, which also means to lower the total number of everyday activities. Alternatively, adaptation can trigger changes in the modal split, depending on cost and accessibility. Finally, one can also change the use of the territories of everyday life and thus the territorial scale of each individual. A fourth option would be to increase the time spent on travel, although as demonstrated repeatedly by the literature, times have remained stable throughout the years. In the case of the Metropolitan Region of Barcelona, the crisis has not reduced the number of journeys per person, so the process of adaptation has occurred through the changing patterns of use of the various modes of transport as well as through the modification of the distances traveled.

led. Mostly, what one observes is a combination of both strategies, with the preference for closer destinations enabling the modal shift from motorized means towards non-motorized ones, without affecting the number of daily activities.

The crisis has had a disciplinary effect over transport, with people having to rationalize their use of modes of transport and long established travel habits. These changes however are location dependent, with the city of Barcelona being better off than the metropolitan rings, having to assume minor changes and being able to keep sustaining a significant growth in the average number of daily trips. The core city, characterized by dense and diverse urban development allows its inhabitants to bet on proximity as a solution for most of their daily needs. In contrast, people living in major parts of the first and second metropolitan ring, with urban developments defined by sprawl and low land use mix, see how their adaptation strategies are limited to changing between motorized modes of transport.

Our analysis demonstrates the importance of territorial resilience at times of economic recession. Resilient territories offer a higher amount of options to people in order to cope and adapt to the crisis in terms of mobility. The crisis has contributed to advance to a model of daily transportation based in nonmotorized modes. Public policies should avoid thus, thinking on how to revert the effects of the crisis on transport and instead should think on how to build upon these changes to keep increasing the role of active modes without people perceiving a decrease on their quality of life.