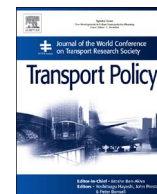




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Impacts of the economic crisis on household transport expenditure and public transport policy: Evidence from the Spanish case

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ABSTRACT

The objective of this paper is to assess the impacts of the economic crisis in Spain on the transport expenditure of households from 2006 to 2014 and how transport authorities reacted to cope with the decreasing public resources and transport demand. The approach is based on quantitative and qualitative sources of information: the Spanish Household Budget Survey and in-depth interviews with public transport policy makers from six metropolitan areas.

Transport is one of the household expenditure items that is the most affected by the crisis. The average amount spent on transport fell to its lowest value in 2013, dropping by 37% in six years. The proportion of budget spent on transport was reduced by a majority of households, whatever the residential location or purchasing power, with the exception of the poorest. Households reacted promptly to the crisis by reducing their purchases of new cars; their spending on transport use was affected less significantly. Poor households or those living in low-density areas were least able to reduce their transport costs.

To cope with the crisis, public transport authorities reduced transport supply and increased fares. They also implemented other measures to bring in extra income which had no impact on transport services. The research concludes that sustainability-oriented transport policies promoting public transport and the reduction of car dependency, together with sustainable land-use policies, may help to limit the household transport budget and the impacts of an economic crisis on mobility.

1. Introduction

The economic and financial crisis that emerged in 2007 has engulfed almost every country and is stronger in intensity and wider in coverage than the Great Depression of the 1930's (Dhameja, 2010; Terazi and Senel, 2011; OECD, 2014). It has affected European countries since 2007–2008 to different degrees. In the European Union, in 2009, the worst year of the crisis, GDP fell by 4.6% while household consumption dropped by 1.8%. Government expenditure probably counterbalanced a more significant reduction as it remained almost stable (Gerstberger and Yaneva, 2013). According to the OECD (2014) market income inequality, measured by the Gini coefficient, rose at least one percentage point in 20 OECD countries between 2007 and 2011/12. The largest increases occurred in the countries hit the hardest by the crisis: Spain (over 7 points, the highest), Ireland (over 5 points), and Greece (5 points). On average, across the OECD countries, the drop in income was twice as large for the bottom 10% of the

population, the poorest, compared with the top 10%, the wealthiest. On average, across the OECD countries, the drop in income was twice as large for the bottom 10% of the population, the poorest, compared with the top 10%, the wealthiest.

Macroeconomic variables such as per capita income levels, unemployment rates or fuel prices have an important influence on transport demand (Cordera et al., 2015). Many academic studies of the effects of the global economic crisis provide evidence that some changes in transport behaviour originated during the recessionary phases (Rothengatter, 2011; Sobrino and Monzón, 2014; Campos-Soria et al., 2015). In Australia, where the impact of the crisis was much lower than in other countries, the baby boomers switched to more environmentally friendly travel modes at the beginning of the financial crisis (Kamruzzaman et al., 2014). In Reykjavik, during the first months of the crisis, people modified their travel behaviour by reducing their trip frequencies and car use, using public transport more, and working more at home (Ulfarsson et al., 2015). As far as transport is

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concerned, residents of central areas were less sensitive to the crisis than residents of the suburbs, and less affected by the reduction in the number of trips. The relations between urban form, location and travel distances have been studied in the case of the Danish region of Zealand/Copenhagen by comparing changes in travel behaviour between 2006/07 and 2010/11 (Nielsen, 2015). The analysis shows that travel distance was reduced, residents preferring nearby destinations as part of cost reducing strategies. Travel was thus more “rational” or less “wasteful” and urban form and location seem essential factors for changing travel behaviour. Adopting a qualitative approach, the RUPTURES research project (Arcadis et al., 2012) studied the impacts on transport in France, where the effects of the crisis were felt later and less severely than in Spain. The findings highlighted the contradictory effects that could affect daily mobility. Despite a trend for mobility to decrease and optimization of transport modes, individuals could also be compelled to undertake longer trips, to access jobs for instance. The results also showed the wide variety of solutions that could be implemented by individuals. Recently, Alonso et al. (2017) analysed the effects of urban sprawl and the financial crisis on public transport (PT) performance in six Spanish metropolitan areas between 2007 and 2012. Evidence was made of a drop in PT trips and a systematic loss of PT efficiency in all areas despite the implementation of different PT supply strategies.

Other research projects have studied changes in travel behaviour due to different factors, but not specifically in the context of the financial and economic crisis. However they shed light on the short-term adaptation strategies of individuals and households with regard to transport. For example, Yang and Timmermans (2013) show for the Netherlands that increasing fuel price decreases travel time expenditure by car. The impact is greater for compulsory travel on weekdays and leisure travel time at weekends, and the reduction in car travel time is made up for by time spent in other transport modes. In the metropolitan area of Brisbane, analysis of the effects of location on transport costs (public transport fares and car fuel) show that these increase as one moves away from the centre (Li et al., 2015). In outer suburban areas, use of less fuel-efficient vehicles and high public transport fares increase transport costs. Transport disadvantage and vulnerability are therefore greater for the poorest households living in these areas.

To analyse the effects of the economic crisis on household transport expenditure we have selected the case of Spain, because it is one of the European countries most affected by the crisis (Pueyo and Hernández, 2013). A drop in macroeconomic indicators has occurred since 2008. First, Spain's GDP peaked in 2008 at €1.12 billion and it fell to a minimum of €1.03 billion in 2013, but started to rise again in 2014 (INE-Cuentas económicas, n.d.). Second, the impact of the crisis on employment in the Spanish economy was devastating (Carballo-Cruz, 2011). Even though the unemployment rate in Spain was already fairly high during the period of growth (8.3% in 2007), according to the Labour Force Survey (INE-Encuesta de Población Activa, n.d.), 3.6 million jobs were destroyed in Spain from 2007 to 2013. The construction sector was the most affected by the crisis, with the number of jobs falling by 55% between 2008 and 2013 due to the bursting of the housing bubble. The collapse of the construction sector increased unemployment at an unprecedented rate until 2013, reaching its highest level of 26.9%. It decreased slightly in 2014 (24.4%), in line with the growth in GDP mentioned above. Moreover, public services and the welfare system were severely impacted due to the contracting economy and the ensuing reduction in the tax take (Pueyo and Hernández, 2013). Between 2007 and 2011 the crisis affected the entire Spanish population, but especially the poorest: the average income of the poorest 10% of the population fell 12.9%, whereas the average income of the richest 10% fell 1.4% (OECD, 2014). In this period, Spain became the country in the European Union with the largest economic inequality.

Together with the reduction in the Spanish economic activity, there

were changes in transport-related indicators. Since the beginning of the crisis, both the price of fuel and public transport fares have increased to a very similar extent (Cascajo et al., 2014). With regard to the automobile market, while the number of new car registrations remained stable since 2004, it collapsed between 2008 and 2012, when it started to recover. Yet, in 2014, the number of new car registrations was half that in 2007. The motorization rate has remained more or less stable in this period, with the highest level in 2007, 486 veh/1000 inhab., and 471 veh/1000 inhab. in 2013 (Sobrinho and Monzón, 2014; Dirección General de Tráfico, n.d.). With respect to transport demand indicators, both the use of urban public transport and the vehicular traffic peaked in 2007, then decreased until 2013 (11.1% and 14.1%, respectively) and recovered slightly in 2014 (Ministerio de Fomento, 2014).

In this paper the impacts of the macroeconomic crisis in the case of Spain are studied under two different angles: the household expenditure patterns and the strategies implemented by public transport authorities. With regard to household expenditure patterns, three questions are investigated: What trade-offs have households made between the different expenditure items? What are the main constituents of household transport expenditure? Are there any differences between households according to their purchasing power or their residential location? With regard to public transport provision, the objective is to investigate what measures have transport authorities implemented in a context of decreasing public resources and transport demand.

The paper is organised as follows. Section 2 describes data and methodological issues. Section 3 analyses the major expenditure items for Spanish households and then considers transport expenditure. Section 4 presents the strategies implemented by public transport (PT) authorities during the crisis to cope with changes in transport demand and budget restrictions. The last section discusses major findings and draws policy-oriented conclusions, which insist on the importance of sustainable transport policies and the interactions between transport and land use.

2. Methodology

The approach is based on both quantitative and qualitative information. The quantitative investigation is implemented to perform an analysis of household transport expenditure at national level (Section 2.1). Given that in Spain, the competences in urban and metropolitan public transport are assigned to the public transport authorities, we then shift to the local level in a qualitative approach. It is based on in-depth interviews with public transport policy makers in six metropolitan areas (MA) for which we analyse what kind of measures were applied to mitigate the negative impacts of the crisis (Section 2.2). It provides important insights in terms of policy recommendations for public transport systems affected by an economic crisis.

2.1. Quantitative analysis: data source

The quantitative investigation was an analysis of the Spanish household's expenditure on transport. We undertook specific processing of data from the Household Budget Survey (EPF, *Encuesta de Presupuestos Familiares*). This survey has been carried out every year since 2006 with a yearly sample of more than 20,000 households (INE, n.d.). The micro data is available via open access on the INE's internet site. The data presented here cover the 9-year period 2006–2014.

The EPF provides comprehensive details of the overall expenditure of Spanish households through 4 nested nomenclatures. Division 07 covers transport expenditure. It contains a breakdown of all the expenditure related to passenger transport: purchase of vehicles (including cars, vans, motorcycles and scooters, bicycles), operation of personal transport (spares, accessories, repairs and servicing, fuel

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