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The green fields of Ireland: The legacy of Dublin's housing boom and the impact on commuting

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ABSTRACT

Dublin, like many other international cities has experienced a significant housing boom in the past decade. This boom has seen an unprecedented increase in the number of houses built and in the density of housing at the periphery of the city. In addition, Dublin has become a more dispersed city with centres of employment no longer being focused only in the Central Business District (CBD). At the same time, the provision of public transport infrastructure, while it has improved, has not kept pace with the increase in housing stock, leading to high levels of car dependency in these peripheral suburban areas. This paper seeks to examine how commuting patterns have changed as a result of this increasing in housing stock. The results presented in this paper show that even within the same electoral districts, commuters living in housing built after 2001 are more likely to drive than those living in older housing. This paper analyses the modal choices of commuters living in both new and older housing and describes the factors that may be leading to higher levels of car dependency in those living in newer housing. The case study presented in this paper shows a city region in transition and documents the impact that a housing boom has had upon commuting patterns.

1. Introduction and background

This paper outlines how Dublin's suburbs have grown and changed over the last decade, leading to an increase in housing in the periphery of the city, where public transport infrastructure has not always been provided. Those living in new houses are more likely to be car dependent than those living in pre 2001 housing. Much of the new housing construction has taken place at the periphery of the city and so higher car dependency amongst those living in these houses is to be expected. One of the primary research questions addressed in this paper is to determine if those living in newer housing have longer and less sustainable commutes. Some of the results estimated in this research show that even within the same areas those living in newer homes (built after 2001) are more likely to drive than are their neighbours living in older homes (CSO, 2012). In this paper, an attempt is made to explore the issues and to examine why this might be. For that reason, the paper does not consider public transport availability to different suburbs: it self-evident that in newer suburbs located in the periphery of the city centre and without access to public transport that reliance on the motor car will be higher than in older suburbs located near good quality public transport. What is of interest in this paper is the fact that even within the same suburbs, with the same access to public transport, those living in newer homes have longer trips and higher levels of car use than those living in older homes within those same suburbs. It is postulated that some of the higher levels of car dependency seen in people living in newer homes may relate to issues such as life stage (younger people with children) and also with their work destinations, which may be more dispersed and less likely to be focussed in the city centre. At the same time as the housing boom in Dublin, there was also a significant increase in the numbers of people working in the Greater Dublin Area (GDA) between 2000 and 2008. That growth in employment and jobs has not, however, taken place only in the city but employment in more dispersed and there a number of employment centres in the GDA that did not exist prior to 2000. Between 2006 and 2011 there has been a 7% increase population in the GDA (CSO, 2012).

2. Literature review

The relationships between urban sprawl and increased travel time and unsustainable trip patterns have been well documented in the literature (McDonnell and Caulfield, 2011; Travisi et al.,

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2010; Zhao, 2010; García-Palomares, 2010; Muñiz and Galindo, 2005). The evolution of cities from monocentric to polycentric with many employment centres and where commuting travel patterns are more complex is also well-documented (Garcia-Lopez and Muniz, 2010; Bento et al., 2005; Kloosterman and Musterd, 2001). In cities with many employment centres, the demand for more flexible transport and more orbital transport routes are high.

Bertolini et al. (2005) emphasise the need for integrated transport and land use planning in bringing about more sustainable travel, but state that while this is widely acknowledged, in reality that integration is rarely realised in city planning. While Handy (1996) also stresses that land use policies are important in developing more sustainable travel, pricing policies may be the most effective method of promoting sustainable car use in the short term. Handy et al. (2005) further adds to the research in this area by conducting a quasi-longitudinal study into the relationships between neighbourhood characteristics and travel patterns in North California. While the authors indicate that the findings of the study are preliminary, they do show that if land use policies are used to locate residents closer to destinations and provide viable alternatives to driving, it can lead to a switch to more sustainable modes. Banister (2011) also stresses this conclusion that mixed-use developments will reduce trip lengths and car dependency.

Availability of public transport is also an important factor in determining modal choice and in reducing reliance on the private car (Giuliano and Dargay, 2010). However, simply locating housing close to public transport does not result in public transport use (Van Wee, 2002). In Dublin, as the research outlined in this paper will demonstrate, even within a suburb where the same public transport is available to all homes, those living in newer homes are more likely to drive than those living in older homes so factors other than public transport availability must play a role in determining decisions to use or not use the car in these areas.

Bento et al. (2005) discuss how density, road network and city shape affect commuting patterns and trip lengths, postulating it is not only population density but also population centrality that impacts upon trips length. Cities where populations are closer to the city centre will have shorter trips lengths and less dispersed employment. In their study of American cities, Bento et al. (2005) found that compact cities lead to lower levels of car ownership and use.

Cervero and Kockelman (1997) examine the impacts the 3 D's (density, diversity and design) have upon commuting patterns in San Francisco. The findings show that residential density, mixed land-use and pedestrian orientated design all result in increased trip rates for sustainable modes. However, other researchers also point to the fact that cities and urban form are evolving away from the traditional city with a strong Central Business District to cities with many employment centres. Researchers point out that in cities with many employment centres it may not be sufficient to provide mixed land-use and pedestrian oriented design to encourage more sustainable travel: if employment centres are sufficiently diverse, travel patterns will be more complex, particularly with the growth of two-income households where both members could be travelling to alternative destinations (Kloosterman and Musterd, 2001). In these cities, destinations are more varied. Garcia-Lopez and Muniz (2010) in their study of employment distribution in Barcelona state that most modern cities are polycentric and give the example of Barcelona where employment is becoming more decentralised and scattered. This is a pattern they claim is repeated in many cities in the developed world and leads to more varied destinations for work trips. Kloosterman and Musterd (2001) also discuss this phenomenon and its impact on commuting patterns. They describe that the development of these cities with more than one centre of employment lead to greater cross-commuting and more traffic congestion in all directions at peak hours. Horner (2004) states that more research is required to assess the impacts of job-housing balance and more dispersed, polycentric cities on commuting, congestion and travel.

The increased green field housing and its impact upon travel patterns are not unique in Ireland. Metz (2012) shows that in the United Kingdom that the majority of green field developments have taken place on the outskirts of towns and cities and that individuals living in these areas are largely dependent upon the car for travel. Chen et al. (2005) report the findings of a study on the rapid growth of new housing developments in Beijing. The results show large increases in car ownership and subsequent congestion in these new developments. Caulfield (2012) also found that those living in lower density housing in Dublin were shown to have much higher car ownership rates and are more reliant on the car for work trips.

Bart (2010) identifies parking controls as one of major tools to alleviate the negative impacts of new housing and retail developments. The research presented highlights how limiting the numbers of new parking spaces in new developments can be used encourage sustainable modes in these developments.

The case study presented in this paper adds to the field of research in this area by showing how the housing boom in Dublin has had an adverse effect on commuting and sustainable travel patterns. The results from Dublin will be of interest to other city regions experiencing the same economic conditions and to regions under going a property bubble and may provide lessons in how best to plan minimise the negative impacts seen in Dublin.

3. Housing in the Greater Dublin Area and travel to work

A breakdown of the housing stock in the GDA is presented in Table 1. The results show that in the five-year period from 2001 to 2006 17% of the housing stock in the GDA has been constructed. This is the same percentage of housing as was constructed in the decade immediately prior to 2001, demonstrating a doubling in the rate of house construction during the boom time in Dublin. Fig. 1 maps the percentage of new housing, built after 2001, for each of the electoral districts in the GDA. The results show that the highest concentrations of new housing tend to be dispersed and on the outskirts of the GDA. Much of this new housing is at a higher density to the older, more traditional Dublin suburbs, and comprises apartments and duplexes, which were rarely seen in older suburban developments. Due to the breakdown of the property market and construction industry in Ireland there is now a large stock of unfinished and unoccupied housing in the GDA. Figures show that there were almost 90,000 unfinished housing units in the GDA in 2011, this accounts for 75% of all unoccupied housing units (Mac Coille and McNamara, 2012).

The construction of new, high-density housing in the periphery of the GDA has significant and obvious implications for the modal choices and travel patterns of those living in these new houses. Many of these new housing developments are not linked to Dublin

Table 1
Housing stock in the GDA.

Year constructed	*N*	%
Before 1970	225,831	32
1971–1990	178,215	25
1991–2000	116,334	16
2001–2006	119,421	17
After 2006	74,181	10
Total	713,982	100