



Does it pay to work from home? Examining the factors influencing working from home in the Greater Dublin Area



Brian Caulfield*

Department of Civil, Structural and Environmental Engineering, Trinity College Dublin, Dublin 2, Ireland

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ABSTRACT

Encouraging working from home or telecommuting has long been seen as a means to encourage sustainable mobility. With increase coverage of high-speed Internet access and escalating transport costs, telecommuting has become more attractive than ever. This paper seeks to explore the factors that encourage telecommuting in the Greater Dublin Area (GDA) in Ireland. The research presented in this paper considers how factors such as public transport access, deprivation, industrial grouping, car ownership, household structure and residential density, impact upon the decision to work from home. The paper also seeks to determine the cost savings in terms of travel time saved that those telecommuting enjoy on an annual basis. The findings of this study show a substantial travel time and cost of travel time saving in the GDA. The findings also suggest areas several factors such as broadband Internet coverage, public transport availability and occupation all impact upon the propensity to work from home.

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1. Introduction and background

This paper focuses upon the GDA and asks the question what factors impact upon individuals' decision to working from home. The GDA includes the counties of Dublin, Kildare, Wicklow and Meath and in 2011 had a population of approximately 1.8 million (CSO, 2011). Typically approximately 56% of the total population of the GDA drive to work alone on a daily basis (see Table 2) and car ownership levels in some areas of Dublin County are substantially higher than that of the rest of Ireland (Caulfield, 2012). Over the past number of years policies have been introduced to reduce reliance on driving and encourage modal shift to more sustainable modes of transport. In 2009, the Irish government launched a sustainable travel plan that aimed to reduce car commuting by 20% (Department of Transport, 2009). Some success has been achieved in this area with an increase in cycling in the Dublin but with limited success outside of Dublin (Caulfield, 2014). However, the GDA has a number of problems that were the product of the recent housing boom and as a result the newer housing stock in the GDA tends to have poor public transport access and residents have longer commuting times (Caulfield and Ahern, 2014).

Telecommuting or working from home has been a policy that has been mostly overlooked in Ireland. Given the nature of the low density housing stock in Dublin and the extensive costs in constructing large scale large new public transport systems in the GDA (Caulfield et al., 2013); the research presented in this paper seeks to determine what benefits a policy of working from home could have in the GDA. The research presented in this paper demonstrates the rates of working from home in the GDA and the travel time saved and economic benefits of working from home.

This section of the paper examines the current rates of telecommuting in the GDA. Table 1 contains a breakdown of each of the modes of transport used to travel to work in the GDA. The first four areas detailed in the table relate to county Dublin. It can be seen in these areas that the percentage of those working from home varies with Dún Laoghaire-Rathdown having the highest percentage of individuals working from home. The results from the counties surrounding Dublin County (those that make up the rest of the GDA) show a higher percentage of working from home with Wicklow having the highest overall percentage. Fig. 1 maps the percentages of those working from home in the GDA and is segmented into electoral districts. The map shows that it is the areas in the south of the GDA that have the highest percentages of individuals working from home. To provide further context involving the rates of working from home, Fig. 2 provides the percentages of those indicating they work from home from the past three sets of Census data in Ireland. The results show that over

* Tel.: +353 1 896 2534.
E-mail addresses: brian.caulfield@tcd.ie, brian.caulfield@gmail.com

Table 1
Means of travel to work in the GDA.

Mode of transport	Dublin city		South Dublin		Fingal		Dún Laoghaire-Rathdown	
	N	%	N	%	N	%	N	%
Walk	47,028	22.4	6535	6.4	7279	6.4	6838	8.1
Cycle	16,960	8.1	3287	3.2	2401	2.1	4022	4.8
Bus	35,500	16.9	12,227	11.9	11,110	9.7	6706	7.9
Rail	14,738	7.0	2476	2.4	11,1163	9.7	11,340	13.4
Motorcycle	1786	0.9	1166	1.1	975	0.9	863	1.0
Drive (alone)	78,582	37.4	65,991	64.1	69,469	60.6	46,789	55.4
Drive (passenger)	5618	2.7	4039	3.9	4423	3.9	2146	2.5
Van	5106	2.4	5042	4.9	4724	4.1	2168	2.6
Other	385	0.2	289	0.3	412	0.4	195	0.2
Work from home	4316	2.1	1741	1.7	2609	2.3	3346	4.0
Total	210,019	100.0	102,763	100.0	114,565	100.0	84,413	100.0
Mode of transport	Kildare		Meath		Wicklow		Total GDA	
	N	%	N	%	N	%	N	%
Walk	5837	7.0	4455	6.6	3914	3.0	81,886	11.5
Cycle	1009	1.2	439	0.7	426	0.8	28,544	4.0
Bus	3241	3.9	3156	4.7	1966	3.9	73,906	10.4
Rail	4220	5.1	1195	1.8	2790	5.5	147,922	20.7
Motorcycle	444	0.5	315	0.5	282	0.6	5831	0.8
Drive (alone)	56,065	67.5	49,944	74.0	32,621	64.2	399,461	56.0
Drive (passenger)	3170	3.8	2798	4.1	1913	3.8	24,107	3.4
Van	5369	6.5	5748	8.5	3430	6.8	31,587	4.4
Other	711	0.9	762	1.1	502	1.0	3256	0.5
Work from home	3005	3.6	3169	4.7	2934	5.8	21,120	3.0
Total	83,071	100.0	67,526	100.0	50,778	100.0	713,135	100.0

the past three Census time periods the rates have fluctuated with the percentages in 2011 being lower than those for 2006, with the exception of County Wicklow. Overall the trend between 2006 and 2011 shows a decline in the numbers working from home. This can be attributed to the increase in unemployment in Ireland during this time period of 10.3% between 2006 and 2011 (CSO, 2015).

Table 2 presents the demographics of those working from home in the GDA and compares them to the population in the GDA. The first set of results relate to gender, they show that a higher percentage of males work from home. The findings for the age categories shows that a higher percentage of those over the age of 45 were said to be working from home. The industrial group that the individual belonged to also examined in this research to attempt to identify which workers are most likely to be in a position to be able to work from home, for ease of reference these groups are numbered as shown in Table 2. The results in Table 2 show that a higher percentage those working in Group 2 were shown to work from home, as one would expect. A greater percentage of those working in Group 6 were shown to work from home. The next set of results relates to education level. The results show little variation between those that completed the different stages of education and working from home. Finally, household composition was examined and it was shown that a greater percentage of those living in households that were a couple with a resident child under or over the age of 19 were working from home.

2. Literature review

The research conducted to date on telecommuting has tended to focus upon its impacts on urban form and the potential benefits and costs of telecommuting. Several authors postulate that increases in telecommuting can have varying impacts upon urban form.

Several authors have demonstrated the environmental benefits of telecommuting. Schwanen et al. (2011) acknowledge that improvements in technology such as video conferencing, has made

the option of telecommuting much more convenient. Henderson and Mokhtarian (1996) conducted pioneering work in this area, measuring the environmental benefits of telecommuting in the Puget Sound region and demonstrated substantial environmental benefits. Mokhtarian and Varma (1988) also found similar reductions in emissions with up to a 21% reduction in carbon dioxide emissions in the study undertaken. Other studies have sought to examine the impacts of telecommuting in relation to distance-travelled reductions. Choo et al. (2005) demonstrate that while the distance travelled reductions related to telecommuting in the United States are modest, they can be in some cases be comparable to public transport ridership and as such present a cost efficient means to reduce overall distance travelled. Other studies have examined the potential of telecommuting as a means to reduce energy consumption, in terms of transportation energy, and have shown the ability of this policy to reduce overall energy consumption in the transport sector (Fu et al., 2012; Noland et al., 2006).

A key factor in examining the success of telecommuting or working from home is the frequency of which individuals engage in this activity. Several studies have examined the frequency of telecommuting and what factors impact on the success of these schemes (Nelson et al., 2007; Mannering and Mokhtarian, 1995; Olszewski and Mokhtarian, 1994). While other studies have shown how incentives can work to encourage individuals to work from home, the frequency of working from home is not examined in the study presented in this paper as only those that work from home on a regular basis are examined.

One of the research questions considered in this paper is how access to technology impacts upon the likelihood that someone will work from home. The impacts that information and communications technology (ICT) would have on transportation patterns have been discussed extensively and Golob and Regan (2001) were stern in their view that the advent of ICT was the single biggest revolution to hit the transport sector since the automobile. Therefore it is unsurprising how many studies have sought to determine the relationships between ICT usage and

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