Obesogenic island: the financial burden of private transport on low-income households

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ABSTRACT

Background The physical and social environment influences access to a healthy lifestyle, of which transport is one determining factor. This paper estimates the cost of transport on the island of Ireland.

Methods Budget standards were developed on the basis of costs of baskets of core goods and services required for daily living. The transport budget was based on the needs of an urban living family. Financial capacity of the family relative to transport basket costs was determined.

Results Transport costs vary depending on family type and car ownership. The motoring costs for a family with two unemployed adults, with a weekly financial capacity of 388.28 € and 427.70 €, respectively, for the Republic of Ireland and Northern Ireland, amount to 94.78 € and 74.68 €, representing 18 and 10% of the family's weekly income.

Conclusion The prohibitive costs of private transport present an opportunity for policy makers to consider creating supportive environments incorporating the more cost-effective and environmentally friendly options of public transport. Without such measures, dependence on private transport will exacerbate the incidence of food poverty and the health inequalities consequent upon it.

Keywords determinants of health, obesogenic environments, physical activity

Introduction

Recently, the emergence of physical inactivity as a major public health challenge has come to the fore and many solutions for this challenge have been proposed.¹–⁴ Research on the influences on the choice of transport either active (walk or bicycle) or inactive (motorized transport) may provide some guidance towards solutions. Inactivity is associated with a range of adverse outcomes, not least of which is obesity. There is now growing agreement among local and international experts that the current epidemic of obesity observed in many populations is primarily a result of what is termed an obesogenic environment—that is, a physical and social environment leading to lifestyles which encourage consumption of energy and discourage expenditure of energy.¹,⁵–⁷

Ireland, both North and South, experiences marked social inequalities in health, seen in the variation in health outcomes, especially mortality, across the different social groupings.⁸ Health-related behavioural choice is strongly affected by structural, material and psychosocial factors.⁹,¹⁰ Access to healthy food and physical activity is determined primarily by what is available to ‘buy’ and what people can actually afford. Friel and Conlon¹¹ identified many issues which impact on the food choices made by people living in the Republic of Ireland (RoI), highlighting financial capacity, affordability and access as the most important drivers. The environment in which people live influences their eating and physical activity behaviours most directly through constraining access. Current research indicates that not all groups within a neighbourhood may be affected by the same factors¹²,¹³ and that even similar factors may affect neighbourhoods differently. For example, if neighbourhoods are unsafe for walking, household characteristics, such as car ownership, might have a greater weight in determining
access to food shopping and physical activity opportunities than might distance to the store.\textsuperscript{14}

Recently, the benefits of active modes of transport have been documented\textsuperscript{1,2,15–17} however, existing transport infrastructure tends to support car travel over any other mode of transport. Research has identified increasing car reliance as a potential contributor to the obesity epidemic,\textsuperscript{18,19} highlighting the possibility that this may have a direct impact on food consumption via changing dietary practices and the provisioning of food ingredients. Current urban form dictates access to adequate transport as a necessity. The availability of and accessibility to a comprehensive and reliable public transport system is associated with increased levels of physical activity,\textsuperscript{20} using public transport as a means of travel to work and/or shopping requires walking between subsequent destinations rather than using a car. With an absence of a sufficient public transport service, car reliance is a key determinant of decreased physical activity levels.\textsuperscript{20}

The phenomenon of growth in car use is as observable for the cities and towns of Ireland as it is in the UK. This growth is magnifying the adverse health effects of motor vehicle transport. One of the main problems facing practitioners wishing to promote ‘active living’ and walking for health benefit is that there has been a decline in walking, particularly in urban areas, for everyday purposes, e.g. journeys to shops and workplaces and schools.

During the 1990s, the RoI experienced high-annual rates of economic growth (the ‘Celtic Tiger’), which reversed decades of economic under-performance and transformed the country from one of the poorest to one of the most affluent countries in Europe. In line with this economic boom, a car culture has emerged in Ireland, with subsequent increases in inactive transport and the decrease in active transport. Over 70\% of the adult population have the use of a car and over three quarters use the car as transport when shopping.\textsuperscript{21} Between 1981 and 2002, the percentage of Irish children between the ages of 5 and 12 years who walked to school declined from 47 to 26\%, while those who went to school by car increased from 20 to 50\%.\textsuperscript{22} Taking these figures in context with the broader environmental issues such as commuting distances and longer working hours, this coincided with the rise in obesity in childhood in Ireland.\textsuperscript{23}

The relationship between car ownership and positive health behaviours is a paradoxical one. Lower rates of car ownership might be expected to be accompanied by the positive health outcomes associated with using more active forms of transportation. But, dependence on car ownership has become more systemic. Centres of activity have become more regional and shopping centres and gymnasiums have moved ‘out of town’. This has been coupled with a decline in local access, fuelled by planning processes that separate land uses and encourage automobile travel.

This over-dependence by society on the car potentially places those without access to a car and/or on a restricted budget at an extreme disadvantage in some cases. The additional financial burden placed on families due to pressures to be car reliant may affect the available financial resources of a household to purchase a healthy diet. It is well documented that, for low-income households, food is seen as a flexible item within the controllable household budget.\textsuperscript{11,24}

Knowing and quantifying the economic and socio-environmental influences on healthier living and eating allows strategic action and intervention to be developed. Currently the financial burden of car ownership is unknown in Ireland. This paper presents results from a study investigating the cost of healthy living on the island of Ireland for low-income families.\textsuperscript{25} More specifically, we focus on the financial costs of transport among three household types. Costs are presented for car owners and non-car owners in both the RoI and Northern Ireland (NI).

**Methods**

Veit-Wilson\textsuperscript{26} recommends that governments employ an adequate income benchmark, internationally known as a Minimum Income Standard (MIS). MIS is described as a set of criteria to evaluate the adequacy of income levels (based on welfare rates, pensions and minimum wages) required for people to be able to take part in ordinary social life and stay out of poverty. One of the basic approaches used in the development of MIS is budget standards. A budget standard thus translates household needs into baskets of goods such as food, clothing, household goods, household services, leisure goods and leisure services. Goods are put into budgets, and budgets into the income level required to reach predefined living standards.\textsuperscript{27–30}

Following this internationally recognized approach,\textsuperscript{29–33} a minimum basket of goods and services required for healthy daily living in NI and the RoI was established for a theoretical household comprising two adults and two children, (a boy and a girl aged 10 and 4 years, respectively). The core baskets focus on health-related behaviour commodities necessary for day-to-day living. These include food and physical activity baskets as well as non-behavioural commodity baskets, i.e. Housing, Household Services, Household Goods, Transport, Clothing and Footwear, Educational Costs, Personal Costs, Personal Care, Leisure goods and Leisure Activities. Car ownership, tobacco and alcohol were included in the baskets. The constituents of the weekly NI and RoI baskets
were informed by household expenditure patterns and national health recommendations. The components of each basket were priced individually for both jurisdictions. Basket cost and subsequently overall cost of living were calculated.

These budgets are specific to a household comprising two adults and two children, aged 10 and 4 years, respectively, residing in an urban area. However, while they are not directly applicable to other family types in different regions, the methodology developed can be used to assess different circumstances. The budgets should be regarded as indicative rather than prescriptive, i.e. they represent levels of spending on all aspects of day-to-day life that are likely to be appropriate for low-income families.

Transport plays a key role in family life yet transport costs vary significantly from family to family. Costs differ according to travel mode, travel patterns and travel frequency. Our transport budget is based on the transport standards developed by Parker et al. for their Low Cost but Acceptable Budgets. This standard was previously used in an Irish in a study assessing the cost of living in the RoI for different family types. The transport budget is illustrative and is based on the needs of a family living in an urban centre. It was assumed that the shops are local and are within 2 mile of home. Two separate budgets were constructed, one for a non-car owning family and one for a car owning family. Active transport in the form of bicycling and walking was included in the physical activity budgets for all family types.

Non-car owning family

It was assumed that this family travels on foot, by local bus and takes the occasional taxi. The annual holiday is ~80–100 mile away and day trips are ~20 mile away. The summary budget includes costs of travel by coach to the holiday destination and a day trip. Also included were three adult and two child local return bus fares per week. Two taxi journeys per year are for emergency travel. Five return bus fares per week were also included as ‘travel to work’ for each working adult and two return bus fares per week are included for those adults ‘seeking work’.

Car owning family

This budget includes the costs of motoring and a reduced public transport budget. The number of miles travelled was sufficient to cover recreational, business and personnel requirements. The budget was based upon a 1997 Ford Focus. It assumes that 5000 mile are travelled per year, that the driver has a full licence with no endorsements, from which insurance and road tax are based. Car depreciation, maintenance, NCT test (or MOT test in NI) and running costs are also included based upon information from the AA (http://www.aaroadwatch.ie).

As with all budget standards the car budgets included in this paper should not be generalized for families living in circumstances other than those described:

- the families live in an urban centre in Ireland, 2 mile from the city centre, with an adequate local bus service and local amenities nearby,
- by using a car, the need and money available for other transport services is reduced,
- the number or miles travelled is set to encourage low but regular engine use; maintenance costs are set to keep the car at a standard described as ‘good condition’.

Integral to the development of budget standards is the relationship of the direct financial cost of healthy living to the household unit’s financial capacity to purchase. Three income scenarios were used; a family with one full-time worker; a family with one full-time and one part time worker; and a family with two unemployed adults. Workers were paid the minimum wage. The financial capacity for each of the income scenarios was determined using information supplied by (i) the Department of Social and Family Affairs and (ii) the Department of Health, Social Services and Public Safety, for the RoI and NI, respectively.

Results

Average transport costs for the RoI and NI can be seen in Table 1. Transport costs are 23% less expensive in NI, irrespective of car ownership, as compared to the RoI for all family types (Table 1). In respect of car ownership, noticeably motoring costs are higher for the families in the RoI than those in NI. We estimated the total cost of car ownership to be 94.78€ and 74.68€ per week, in the RoI and NI, respectively.

Household financial capacity for each family income scenario is detailed in Table 2. Families with either one or two working adults have similar weekly incomes north and south of the island; however, the family with two unemployed parents has a financial advantage of 40€ if residing in NI.

When total budgets are examined and compared to the financial capacity of the family, each income scenario for two adult and two children households in the RoI and NI is at almost 100% spending capacity or above. The inclusion of motoring costs into the budgets, results in the disposable incomes for all income scenarios in both jurisdictions falling short of the minimum requirement to purchase these
baskets of goods, placing a significant financial burden on families in both regions (see Figs 1 and 2). Of particular concern, the inclusion of a car in the household basket decreases the proportion of the budget available to spend on food and other essential living commodities. Figs 1 (non-car owning families) and 2 (car owning families) demonstrate the cost of a standard healthy living basket as a percentage of weekly household income for three family scenarios. These figures clearly illustrate how each income scenario is at around 100% spending capacity or above.

Table 1. Average transport costs in the RoI and NI for three family income scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>RoI (€)</th>
<th>NI (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total transport for non-car owner: couple with children, one full-time worker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular day-to-day fares and other travel</td>
<td>12.69</td>
<td>9.81</td>
</tr>
<tr>
<td>Travel to work</td>
<td>13.25</td>
<td>10.18</td>
</tr>
<tr>
<td>Total</td>
<td>25.94</td>
<td>19.99</td>
</tr>
<tr>
<td>Total transport for non-car owner: couple with children, one full-time one part-time worker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular day-to-day fares and other travel</td>
<td>12.69</td>
<td>9.81</td>
</tr>
<tr>
<td>Travel to work</td>
<td>26.50</td>
<td>20.36</td>
</tr>
<tr>
<td>Total</td>
<td>39.19</td>
<td>30.17</td>
</tr>
<tr>
<td>Total transport for non-car owner: couple with children, unemployed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular day-to-day fares and other travel</td>
<td>12.69</td>
<td>9.81</td>
</tr>
<tr>
<td>Seeking work costs</td>
<td>9.78</td>
<td>7.52</td>
</tr>
<tr>
<td>Total</td>
<td>22.48</td>
<td>17.32</td>
</tr>
<tr>
<td>Total transport for car owner couple with children, one driver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motoring cost</td>
<td>87.84</td>
<td>69.55</td>
</tr>
<tr>
<td>Other modes of transport</td>
<td>6.95</td>
<td>5.13</td>
</tr>
<tr>
<td>Total</td>
<td>94.78</td>
<td>74.68</td>
</tr>
</tbody>
</table>

Table 2. Financial capacity of three family income scenarios in the Republic of Ireland and Northern Ireland

<table>
<thead>
<tr>
<th>Scenario</th>
<th>RoI (€)</th>
<th>NI (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two adults (one full-time worker) with two dependent children</td>
<td>471.82</td>
<td>472.58</td>
</tr>
<tr>
<td>Two adults (one full-time, one part-time worker) with two dependent children</td>
<td>530.51</td>
<td>560.41</td>
</tr>
<tr>
<td>Two adults (both unemployed) with two dependent children</td>
<td>388.28</td>
<td>427.70</td>
</tr>
</tbody>
</table>

Sensitivity analysis

Sensitivity analysis was not specifically conducted for the transport basket, however minimum and maximum prices were collected for the food and housing baskets. In terms of overall cost of living, using the minimum and maximum basket costs for specific baskets, three basket prices were calculated. Table 3 highlights the difference between the minimum, average and maximum basket for a family with one adult working. The car-owning family in the RoI and NI have a weekly shortfall ranging from 66.58€ to 182.18€ and 57.71€ to 114.68€, respectively.

Discussion

Main findings

This analysis highlights the variation in transport costs in Ireland and illustrates the prohibitive costs of owning and running a car for low-income families on the Island, particularly for those in the RoI. The study estimated the total cost of car ownership to be 94.78€ and 74.68€ per week, in the
RoI and NI, respectively. These costs have substantial health and social impacts for families who are at 100% spending capacity or above. They have implications for access to and availability of facilities and services, especially when one takes into account the recent trend whereby shopping complexes are being built on the outskirts of towns and cities, necessitating the use of a car or some other form of automobile transport to access them.

What is known already
The inadequacy of public transport increases the need for access to some form of private transport which is prohibitively expensive for low-income families, and places an even greater financial burden on financially stretched households. Car reliance is a key determinant of food accessibility and dietary habits. More importantly for low-income groups, the financial burden of car ownership increases the dependence on goods available in the local store. These have been shown to stock a high proportion of less healthy foods and are more expensive when compared to large multi nationals. The purchase of cheap filler foods from the cereal, bread and potato group of foods and cheaper cuts of meats; which often contain high levels of saturated fat and salt, is prevalent among low-income households. So also is purchasing processed foods high in saturated fat, salt and sugar. These are often the most affordable products.

Positive nutritional opportunities are manifestly one such area where not owning a car constitutes a health deprivation.

What this study adds
This study highlights the differential costs of car ownership between the North and the South of the island of Ireland. It highlights the common barriers and challenges of financial affordability and the burden of private transport for low-income families in both jurisdictions.

The Financial burden of car ownership
The study has for the first time quantified the financial costs, from all island perspective, how much it costs a low-income two parent, two children household to live a life compliant with general societal norms in the RoI and NI. It highlights the inequities in healthy lifestyle choices on the island of Ireland. We identified food housing and transport as the main budgetary drivers in Ireland. As has been shown elsewhere, food is where budgeting economies are often made by those on low incomes. Compared to food expenditure, the costs of car ownership are inflexible. The change observed in our food budgets when car ownership was included in the total budgets in both the RoI and NI highlights the potential squeeze that food will experience when a household is allocating money to a larger number of commodities. Car ownership imposes a financial burden that will have a direct negative impact on the food choices that are made. Not to own a car is also to restrict food choices, by increasing dependence on local stores; in addition, it will constrain access to other health promoting opportunities.

The implications for transport policy
The increasing prohibitive costs of private transport present an opportunity whereby policy makers should consider focusing on creating supportive environments incorporating more cost-effective and environmentally friendly options. It is unlikely, in the foreseeable future that welfare benefits to low-income households will keep pace with these spiralling costs. If this is not to translate into a widening disparity in the health experience of low-income families, measures must be taken to reduce the penalty for not owning a car. Public policy needs to focus on improving and providing affordable, reliable and sustainable public transport.

### Table 3

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Family</th>
<th>Costs</th>
<th>Average (€)</th>
<th>Minimum (€)</th>
<th>Maximum (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total basket cost</td>
<td>603.18</td>
<td>538.40</td>
<td>654.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weekly shortfall</td>
<td>−131.36</td>
<td>−66.58</td>
<td>−182.18</td>
</tr>
<tr>
<td>Republic of Ireland</td>
<td>Car owning family</td>
<td>Non-car owning family</td>
<td>534.34</td>
<td>469.56</td>
<td>585.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weekly shortfall</td>
<td>−62.52</td>
<td>2.26</td>
<td>−113.34</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>Car owning family</td>
<td>Total basket cost</td>
<td>603.42</td>
<td>530.29</td>
<td>641.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weekly shortfall</td>
<td>−130.84</td>
<td>−57.71</td>
<td>−169.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total basket cost</td>
<td>548.73</td>
<td>475.60</td>
<td>587.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weekly shortfall</td>
<td>−76.15</td>
<td>−3.02</td>
<td>−114.68</td>
</tr>
</tbody>
</table>

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Limitations of the study

The main conceptual strength of a budget standard is that it begins by identifying the needs associated with a given standard of living.1-3,8 Questions will undoubtedly arise about the components of our budget standards, however, the development of budget standards involves a complex series of judgements about which there is always likely to be some degree of debate.27,31,39,40 A number of assumptions had to be made. These budgets assume that the family are in good health; are not repaying debts/loans; and that the house they reside in is of an acceptable standard meeting all health, safety and fire regulations. The food budget assumes a typical Irish diet; it does not include ethnic or cultural traditions or vegetarian diets.

Although these budgets attempt to be all encompassing, the final budgets excluded any margin for personal choice, for contingencies or emergencies, thus underestimating the real minimal costs of healthy living. These exclusions could have serious financial, and ultimately health, implications. Unavoidably too, there are inefficiencies in purchasing. These budgets do not take account of peoples ‘budgeting strategies’ only their outcome in terms of potential or practice. These inefficiencies have been estimated to add an additional 6% to the real minimal costs of healthy living. These exclusions could for contingencies or emergencies, thus underestimating the potential to understand the circumstances of households during two unique historical economic time periods.

Elasticity of commodity prices has not been taken into account in these budgets. Economic analyses are needed to assess the price elasticity of transport and other household commodities, i.e. the effect of incremental change in the price of a commodity and the effects on incremental change in consumer demand. It may be that as one or more items change in price this has a compensating demand change in other commodities (cross-price elasticity). Inevitably, variations in basket content will impact on the cost of living and thus the findings of this study.

These limitations, however, do not detract from the importance of an absolute minimum income requirement for healthy living. These budgets have an advantage in that they are based on circumstances in Ireland in two different economies-The RoI during its economic boom and in NI in the ‘Peace Process’/‘Power Sharing’ era. Thus, they provide the potential to understand the circumstances of households with the lowest standards of living in the two jurisdictions during two unique historical economic time periods.

References


