



article

Fare's fair? Concessionary travel policy and social justice

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This paper argues that transport has an important influence on individuals' welfare and therefore transport policy can be readily analysed from social justice and welfare policy perspectives – yet only rarely ever is. The paper develops a justice framework in which to assess the 'fairness' of the eligibility criteria used in concessionary fare policies – specifically the justice principles of need, desert, equality, option choices and affordability. The paper examines a concessionary bus fares policy from a social justice perspective, including an empirical assessment of who in practice benefits most from it and how these findings measure against justice principles.

key words older people • transport policy • mobility • social justice

Introduction

Transport policy has not featured to any significant extent in the analysis of welfare policy. Nevertheless, transport has been recognised as a key obstacle to welfare, wellbeing and social inclusion for many people. As in other areas of welfare policy, questions of entitlement to, and distribution of the benefits arising from, state-provided or state-subsidised transport schemes come to the fore in an analysis of the social justice implications of transport provision. Thus, transport is a highly relevant, but neglected, field of enquiry in the study of welfare policy, poverty and social justice.

The overall aim of the paper is to explore transport and transport policy as an area of welfare policy. Two objectives for analysis have been developed to address this aim. First, to empirically evaluate *ex-post* the impact of a concessionary bus fare policy in terms of who benefits and to what extent. Second, to assess the social justice implications of the impacts of this policy.

The remainder of the paper is structured as follows. The following section reviews the treatment of transport issues in existing literature on poverty and social justice. The next section 'Transport and the principles of justice' develops a justice framework in which to assess the 'fairness' of the eligibility criteria used to determine who benefits from transport services. The paper then outlines as a case study the National

Concessionary Travel Scheme (NCTS) for older people in Scotland and reflects on the justice issues and framing of that particular policy. The following section outlines data and methods used to estimate the impact of the scheme in terms of who benefits and to what extent. The following section reports the results of the empirical analysis. The final section of the paper discusses the implications of the results for the fairness of the NCTS in particular, and offers further reflections on the nature of transport more generally as a welfare policy and its social justice implications.

Transport in poverty and social justice research

A number of studies have found links between poor transport and poor access to jobs, goods and services, making it difficult for some people to fully participate in society (Hine and Mitchell, 2003; Lucas, 2004; Preston and Rajé, 2007; Church et al., 2000). Problems often arise when people are not able to afford, access or drive a car in an increasingly car-orientated world. Some people living in 'edge-city' or rural locations have difficulty accessing a range of transport. Groups with lower transport mobility include young people, older people, women, ethnic minorities and disabled people.

Travel difficulties are cited as obstacles to participation in a range of activities central to social inclusion, including training and education, employment, shopping and leisure (Social Exclusion Unit (SEU), 2003). The issue of poor access to transport and/or low proximity to key destinations such as jobs and post-school education and training institutions and the social disadvantage that can arise has been given much attention in the United States and to a lesser extent and with different emphases in the United Kingdom and elsewhere in Europe. In the US, there has been a strong emphasis on race, for example the entrapment of African Americans and immigrant populations in central city neighbourhoods and ensuing isolation from emerging suburban and 'edge-city' loci of lower-skilled jobs and other facilities (Ihlanfeldt, 1993; Raphael, 1998; Liu and Painter, 2011).

A strong 'transport justice' literature in the US highlights a range of inequalities in a variety of transport issues, including: access to transport (particularly the benefits of access to a car) by race, gender and age; patterns in exposure to transport pollution; racial and class differences in fatalities and injuries arising from transport accidents; and the severance of neighbourhoods by freeways and railroads (Gwynn and Thurston, 2001; Clifton and Lucas, 2004; Wier et al., 2009; Mindell and Karlsen, 2012). Research in the UK and Europe more generally has tended to focus on 'transport and social exclusion', highlighting mainly obstacles to the use of public transport and the isolation faced by some groups and some locations, particularly older people, remote rural communities, ethnic minorities and disabled people (Owen and Green, 2000; Gray et al., 2006; Shergold and Parkhurst, 2012). On neither side of the Atlantic, however, has transport policy been a sustained area of scholarship within literatures on social policy and welfare services. This is surprising, given that transport itself can be considered a substantial 'welfare service' and that access to adequate transport is a vital component of achieving social inclusion and wellbeing.

Transport and the principles of justice

In order to critically assess the effectiveness and equity/justice of any policy, including transport policies, a fundamental question is: 'what outcomes are sought

and for whom?' In relation to concessionary bus fares, the 'answers' could include: a) improving social inclusion through increasing the mobility of mobility-constrained individuals for example along lines of income, age, race, ethnicity, gender and disability; b) redistribution of resources in favour of bus users on the basis that low-income and other disadvantaged groups are over-represented among bus users; and c) environmental benefits through encouraging switches from car to bus.

The importance of access to transport in achieving social inclusion and wellbeing has been alluded to above. In relation to redistribution, given that some low-income individuals and households spend a non-trivial proportion of income on travel and are more likely to travel by bus, subsidising public transport has the potential to alter the overall distribution of disposable income. In relation to environmental benefits from reduced car use, the effectiveness of financial incentives alone in producing large-scale behaviour change has been questioned (Graham-Rowe et al., 2011). However, irrespective of any behaviour change that may or may not arise, financial instruments are used by governments to give reward and penalty signals to citizens of desired behaviours and wider values and deserts.

The eligibility criteria used in a concessionary bus travel policy therefore are of direct and substantial significance for issues of poverty and social justice. The principles of justice (need, desert, equality, etc.) can be applied just as readily to a concessionary travel policy as to a conventional area of social policy, such as social security or taxation (see Table 1). What constitutes 'need', 'desert' and so on of course is subjective, multi-faceted, contradictory and ultimately derives from underlying cultural and ideological values. In relation to transport, Farrington and Farrington (2005) argue that an 'acceptable' level of mobility is determined by societal norms around travel behaviour and the geographic locations of 'destinations' (homes, jobs, retail, leisure, etc.). Therefore, the examples listed in Table 1 serve solely to illustrate the principles and do not imply any judgements on what specific criteria might be considered 'just', necessary or appropriate in any particular society or context.

In relation to achieving social inclusion and alleviating poverty, who is in need of free or subsidised bus travel? Logically, the answer to this question is those who meet all of the following criteria: a) without access to a car; b) on low income; c) requiring to travel; and d) sufficiently able-bodied to make use of a bus (and therefore benefit from the provision of free bus travel). Therefore, in order to assess which groups in society are in greatest need of assistance from a concessionary bus fares policy (and therefore those whom policymakers may wish to target), it is necessary to consider the distribution of these four characteristics (a–d) across social categories such as income, race, ethnicity, gender and disability.

Before discussing the distribution of these characteristics, the relationship between each and an individual's potential to benefit from free bus travel is considered. Lack of access to a car can be expected, *ceteris paribus*, to lead to an increased need to use a bus. Low income can also be expected, *ceteris paribus*, to increase the risk of either foregone mobility (that is, not travelling in order to save money) or impoverishment resulting from a high proportion of income being spent on travel. Both the requirement to travel and disability have more ambiguous relationships with level of bus use. A greater requirement to travel might increase bus use, but equally may encourage car ownership and therefore serve to reduce bus use. Similarly, disability can be expected to either increase or decrease bus use for a given individual. On the one hand, some conditions limit bus use (despite improvements in the accessibility of public transport

Table 1: Justice principles and transport policy

Justice principle	Application to concessionary bus fares policy
Activity needs	Those who have a requirement to travel, e.g.: <ul style="list-style-type: none"> • having a long commute; • to attend regular hospital appointments; • to undertake mandatory unpaid activities outside the home, e.g. jury service, reporting to social security offices; • to access leisure and cultural facilities and social activities.
Just deserts	Those who deserve to be rewarded, e.g.: <ul style="list-style-type: none"> • for undertaking unpaid 'beneficial' activities outside the home, e.g. attending college, caring for relatives; • for contributing to transport provision, e.g. employees of bus companies.
Equal shares	Redistribution towards greater equality across groups (income, race, ethnicity, gender, etc.) in, for example: <ul style="list-style-type: none"> • level of use of/benefit from state-subsidised services, incl. public transport; • overall levels of mobility by all modes of travel.
Option choices	Encouraging and rewarding desirable travel behaviours, e.g.: <ul style="list-style-type: none"> • scrapping a polluting car; • becoming a non-car owner; • travelling regularly by bus.
Affordability	Supporting those who struggle to pay bus fares, e.g.: <ul style="list-style-type: none"> • those on a low income; • those who spend a high proportion of their income on bus travel.

systems). On the other hand, some conditions lead to driving cessation, which may in turn increase bus use (provided of course an individual remains able to use a bus).

What is known about the distribution of these four characteristics across society? First, those without access to a car are most likely to be younger, older, disabled, low income, ethnic minorities, women and live in a city (Power, 2012). Second, those on low income are most likely to be younger, older, disabled, ethnic minorities and women – although many individuals with low or no personal income of course have access to household resources. The third characteristic, requirement to travel, is more difficult to measure because the requirement or need can be short-circuited by inability to travel, making the requirement to travel difficult to observe. Using the amount of actual travel as a proxy for requirement or need to travel, the greatest levels of travel mobility are found among those aged 30–50, those on higher incomes and men (although gender differences have narrowed substantially) (Tilley, 2013). Finally, the greatest prevalence of 'able-bodiedness' occurs among younger people, steadily declining with age (Noble, 2000). Poor health and impairment are more prevalent among lower socio-economic groups, although socio-economic disparities in 'able-bodiedness' are dwarfed by age differences.

A case study: the National Concessionary Travel Scheme (NCTS) in Scotland

Across the UK there are policies of providing older and disabled people with a concessionary travel pass which allows travel free of charge on bus services, with the bus operator being reimbursed by the state. The policy of free bus travel aims to improve older people's mobility, by eliminating the financial cost of public transport as borne

by the user. The development of this policy has been based on the assumption that the cost of transport is a barrier to mobility for older people, due to low incomes as a result of relying on pensions as well as, for some, not being able to drive. Concessionary travel for older people is a universal benefit, in that all people over a certain age are eligible. As it is based on age, it assumes that all older people have similar mobility requirements. It is often politically justified in terms of 'just deserts', on the basis that the recipient will usually have paid tax during their working life.

The National Concessionary Travel Scheme (NCTS) that is in place in Scotland is a universal policy in so far as all people over the age of 60 are eligible. Eligibility to claim the concessionary pass is only based on age, irrespective of activity needs or affordability. However, it is, of course, consistent with the universalist principle of entitlement – albeit restricted to a certain age group. In addition, however, disabled people of all ages are also entitled to free bus travel in Scotland.

Concessionary travel passes will no doubt be meeting a need for some older people. Without this pass some older people may struggle to travel and therefore access services. For example, the maximum state pension available is £110.15 per week (Gov. uk, 2013) and a single bus fare cost an average of £1.89 in urban areas and £1.96 in non-urban areas (TAS Partnership Ltd, 2012) meaning to travel every day by bus costs around £25 per week, representing nearly a quarter of state pension income. As a consequence, older people on low incomes could either spend a relatively high proportion of income on transport with implications for poverty, or be discouraged from travel with implications for social exclusion.

Concessionary travel schemes have been in existence in the UK since the late 1960s (Headicar, 2009) yet are only weakly embedded within UK mainstream welfare policy, which is dominated by concerns with education, health, social security, and to a lesser extent pensions and housing. Older people are able to travel for free on public transport in all UK countries. In Scotland, free national concessionary bus travel has been available since April 2006 to older people aged 60 and over, as well as eligible disabled people, with the aim of promoting social inclusion by allowing improved access to services by increasing mobility by bus (Transport Scotland, 2009). Prior to this, schemes were provided at the discretion of each local authority. Table 2 summarises the changes that have been made to the Scottish concessionary travel scheme policy between 1999 and 2008.

Table 2: Changes made to the Scottish concessionary travel scheme policy from 1999-2008

1 January 1999– 29 September 2002	30 September 2002– 31 March 2003	1 April 2003– 31 March 2006	1 April 2006– 31 December 2008
Discretionary fares	Free local travel	Free local travel	Free national travel
Women (60+)	Women (60+)	Women (60+)	Women (60+)
Men (65+)	Men (65+)	Men (60+)	Men (60+)

This paper focuses on evaluating mobility before and after April 2006 as major changes were made to the scheme when local area boundary and peak hour restrictions were removed. These changes were a significant expansion of the policy and therefore provide a 'natural experiment' on which to base an empirical analysis of the impacts

of the policy. The changes also served to increase awareness of the scheme, as the introduction of the new national scheme was quite widely publicised.

Due to the universal availability of the scheme anyone meeting the age criteria, irrespective of income, is eligible to claim. Not all older people have low incomes therefore this policy makes very broad generalisations about the income and mobility needs of this population. Concessionary travel for older people when considered as a welfare policy is highly unusual and has more in common with the universalist post-war welfare settlement than twenty-first century welfare policies, which are characterised by increased targeting on those in greatest need. It is a universal policy – every citizen (who meets the age criterion, of course) is entitled to free bus travel. Since the 1980s, means-testing has become more widespread in the UK social security system. This makes concessionary travel for older people unusual. Age is a very weak proxy of an individual's level of need for financial assistance to use public transport – many travel by car or can afford to pay for the bus. Age is a political, rather than a needs-based category when it comes to concessionary travel policy. Older people are seen as having 'earned' their concessions by paying tax throughout their working lives and are represented as in 'need' due to advancing years and the onset of frailty. This combination of desert and assumed need results in a presumption of entitlement.

In recent years in the UK there has been particular focus on the increasingly unequal distribution of wealth between generations (Willets, 2010), which had been noted particularly in relation to housing and higher education costs and access to benefits, but exacerbated by high youth unemployment since the recession. Therefore cost as a barrier to transport may become more significant among some younger people. As the price of bus fares has increased above the rate of inflation the *de facto* benefit older people are receiving is rising while younger people using public transport have to pay increased fares. As a result there are concerns that the existing NCTS is neither effective in targeting those most mobility-constrained (many of whom are under 60 years of age and therefore not eligible) nor fair in that many who are eligible are not on low incomes. Higgs and Gilleard (2010) highlight that there has been a renewed interest in inter-generational justice in modern welfare states due to population ageing and the financial crisis in 2008 and resulting economic slowdown.

Although some research has found that quality of life has improved among older people from the introduction of concessionary travel (Rye and Mykura, 2009; Andrews, 2011; Hirst and Harrop, 2011) as well as health improvements (Coronini-Cronberg et al., 2012; Webb et al., 2012), these benefits have been contested due to the small numbers reporting them and high costs involved in providing the scheme (Rye and Carreno, 2008b).

There appears to have been very little social inclusion impact arising from concessionary travel in Scotland as for many there are non-financial barriers to using public transport (Rye and Carreno, 2008a; 2008b; Transport Scotland, 2009). For example, aspects of the built environment can present barriers to accessing public transport (Marsden et al., 2008; Wennberg et al., 2009; Risser et al., 2010; Hess, 2012).

Quantitative evaluations of the NCTS have focused on levels of uptake of the concessionary pass and not on level of use of the pass. Prior to the introduction of the national scheme, uptake of concessionary travel passes under the old local schemes was highest among lower-income groups, women, those without access to a car and urban dwellers. Since the expanded national travel scheme was introduced, overall uptake has increased, with the greatest increases among groups with previously low

levels of uptake – higher income groups, men, car owners and rural dwellers (Rye and Mykura, 2009; Scottish Government, 2009; Baker and White, 2010; Dargay and Liu, 2010; Humphrey and Scott, 2012). Only one study has examined the impact of the scheme on levels of bus use (Dargay and Liu, 2010), but without any controls for other factors associated with bus use or counterfactual trends as used in the analysis reported in this paper. Dargay and Liu (2010) found that while trips with the pass rose by 25 per cent, bus trips made by eligible individuals fell by 10 per cent. Without controlling for a counterfactual trend, it is not possible to conclude from these figures how many, if any, of the increase in number of concessionary trips are additional trips that would not have been made in the absence of the scheme.

Data and methods

This paper considers the impact of the Scottish NCTS and the appropriateness and consequences of providing free bus travel, especially in light of important changes to the health and wealth of retired people. Scotland is used as a case study as there is available data to conduct a 'natural experiment' due to the substantial enhancement of the scheme in 2006.

The analysis was undertaken using data from the Scottish Household Survey (SHS). This is a repeated cross-sectional survey of the composition and characteristics of households in Scotland. The survey includes a one-day travel diary element, enabling travel patterns to be linked to household characteristics. Other surveys with a travel diary, such as the UK's National Travel Survey, have much smaller sample sizes that would not support the analysis of specific sub-groups, such as older bus travellers differentiated by a range of personal characteristics. Data are available from 1999 to 2008 and as the NCTS was rolled out nationally in Scotland in 2006, data are available to consider how the policy is being taken up by different users. The SHS is based on a random sample from the Postcode Address File (PAF) generating 31,000 interviews spread evenly over two years. Aggregating data from all available years into a single dataset gives a final sample of older people (aged 60+ years) of over 26,000.

For the purpose of this research, mobility refers to distance travelled and frequency of trip-making that takes place outside the residential home in order to acquire goods or services or to take part in activities. Trip rates, distance travelled and mode of transport used are common indicators of mobility (Tacken, 1998; Rosenbloom, 2004; Páez et al., 2007). Changes in daily distance travelled per week are important in this study because as incomes have risen, car ownership has increased, leading to higher car use and greater distance travelled (Lucas and Jones, 2009; Metz, 2010). The analysis only focuses on daily mobility rather than less frequent longer distance travel. All older respondents were included in the analysis, even if there were no trips made, to be able to accurately assess mobility trends.

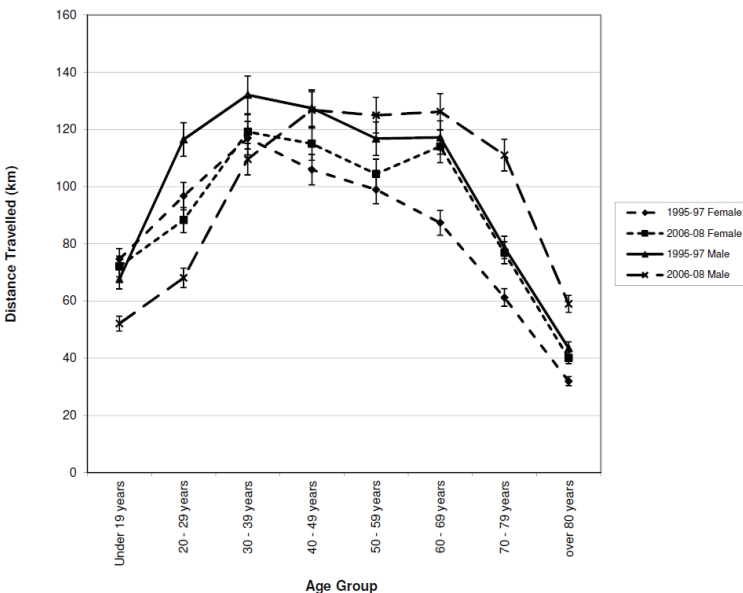
To estimate what might have happened without the existence of the NCTS policy, a statistical technique called 'difference-in-difference'¹ was used. This technique compares the differences in behaviour between two time periods as well as the 'difference in difference' between a 'control' and 'intervention' group over the time periods, which, it is argued, reveals the policy impact. The intervention group comprised of those aged 60 and over who stated that they held a concessionary pass. The control group were those aged 60 and over without a concessionary pass. Since uptake of the pass is voluntary, it is possible that those who take up the pass would

have increased their bus use in the absence of the policy, introducing a bias into the quasi-experimental design of this part of the analysis. However, the ‘difference-in-difference’ approach takes account of the change predicted to have taken place in the absence of the policy (based on the temporal change observed in the ‘control’ group). We can therefore have a degree of cautious confidence that the results are free from a strong bias effect. The two time periods considered were 1 January 1999–31 March 2006 (before the national roll out of the NCTS policy) and 1 April 2006–31 December 2008 (after the national roll out of the policy in April 2006). Previous research has shown that higher incomes generally lead to higher levels of car ownership (therefore driving licences) and greater distances travelled (Pooley et al., 2005; Lucas and Jones, 2009; Metz, 2010). Residential area type also influences mobility levels (Gray et al., 2008). Therefore these factors have been included as independent variables in the regression models. All analysis has been disaggregated by gender given gender differences in mobility patterns (Rosenbloom, 2006; Su and Bell, 2012). Trip frequency and distance travelled by car-driver and bus passenger were used as indicators of mobility.

Findings: impacts of the NCTS set against broader mobility trends

Broader mobility trends have been assessed to provide context to the changes in mobility related to the NCTS. Figure 1 presents the median distance travelled per week (km) by age group, comparing men and women at two points in time: 1995–97 and 2006–08. Over time, distance travelled has increased among older age groups aged 60 and over, while it has declined among younger age groups, particularly among men belonging to the youngest age groups.

Figure 1: Median distance travelled per week (km) excluding commuting, business and education trips by gender and age group from 1995 to 2008 (3-year moving averages with 95% confidence intervals)

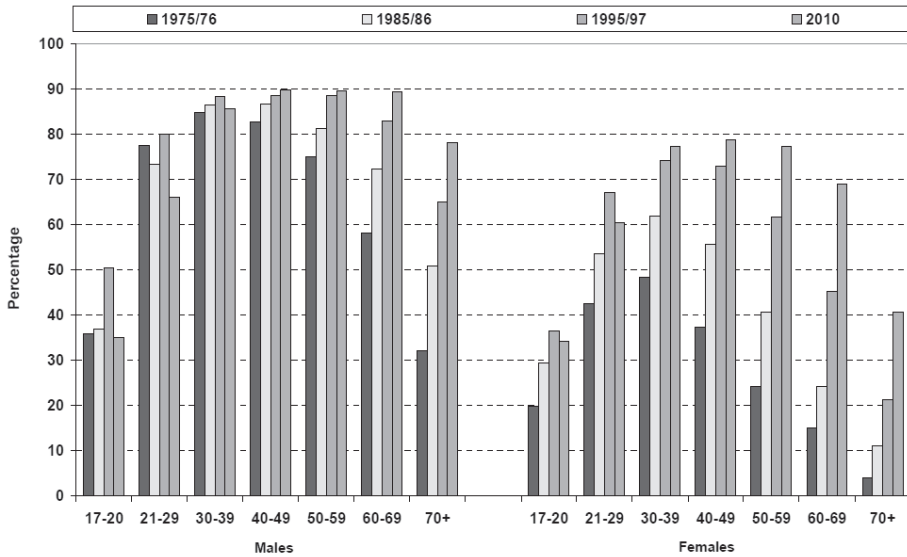


Source: Tilley, 2013

During 1995–97 median distance travelled was greater among men than women and this was true of all age groups. However, during 2006–08, for younger age groups (below 40 years), women travelled *further* than men. These findings highlight important gender differences in mobility; however, the nature of this has changed over time among some age groups. The greater mobility of older men largely reflects better access to transport resources among that generation (Rosenbloom, 2006), while the contemporary greater mobility of younger women may reflect more complex activity schedules undertaken by women compared to men.

To further explain this finding Figure 2 shows that in Britain, since 1975/76, there has been an increase in the proportion of both men and women holding a full driving licence across most age groups. However, the biggest increases in holding a driving licence have been significant for older people and women.

Figure 2: Full car driving licence holders by age and gender: Great Britain, 1975/76– 2010



Source: DfT, 2010

Since 1975/76, the proportion of men aged 60–69 years holding a driving licence has increased from 58 per cent to 89 per cent in 2010. Among women, the increase has been even greater, rising from 15 per cent in 1975/76 to 69 per cent in 2010. These dramatic increases are also reflected in the proportions of men and women aged 70 and over who hold a driving licence. For men this increased from 32 per cent in 1975/76 to 78 per cent in 2010, while for women, it rose from 4 per cent to 41 per cent. These are very significant figures indicating that the older population are highly mobile compared to those of 30 years ago.

A reduced rate of driving licence holdership is, however, observed among the 17–20 age groups and 21–29 age groups, most notably among men. Among these younger age groups cost factors are the main barriers to learning to drive (DfT, 2010).

To assess whether the NCTS in Scotland is increasing mobility, therefore promoting social inclusion among older people, a closer examination of the trends relating to concessionary pass holding is required.

From 1999–01 to 2006–08 the proportion of older people holding a concessionary bus pass increased from 65 per cent to 88 per cent, representing the increased scope and generosity of the concessionary scheme.

To assess whether the Scottish NCTS could be promoting social inclusion through increased mobility, the socio-economic characteristics of concessionary pass holders are explored. Figure 3 shows that concessionary pass holders aged 60 and over who also hold a driving licence has increased among both men and women. Figure 4 also presents a similar pattern in relation to household car access. Figure 5 shows that the proportion of older people holding a concessionary pass and belonging to the two

Figure 3: Percentage of older people in Scotland who are concessionary pass holders by gender and driving licence holdership from 1999 to 2008 (3-year moving averages with 95% confidence intervals)

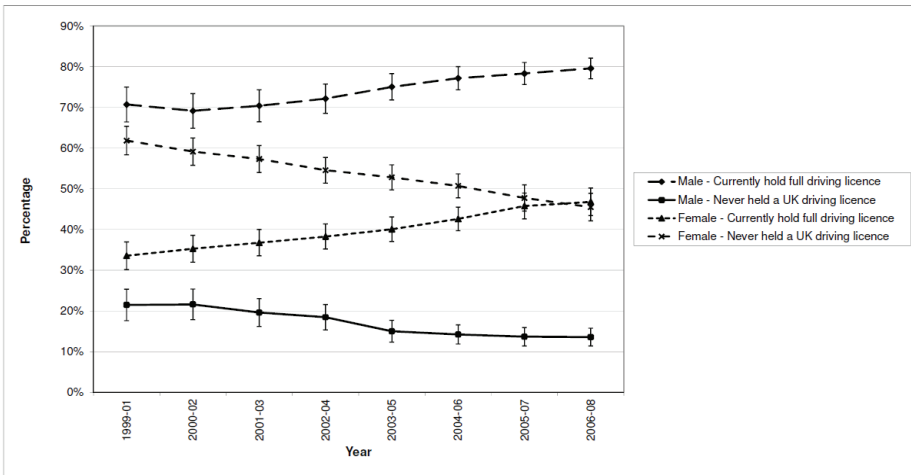


Figure 4: Percentage of older people in Scotland who are concessionary pass holders by gender and household car access from 1999 to 2008 (3-year moving averages with 95% confidence intervals)

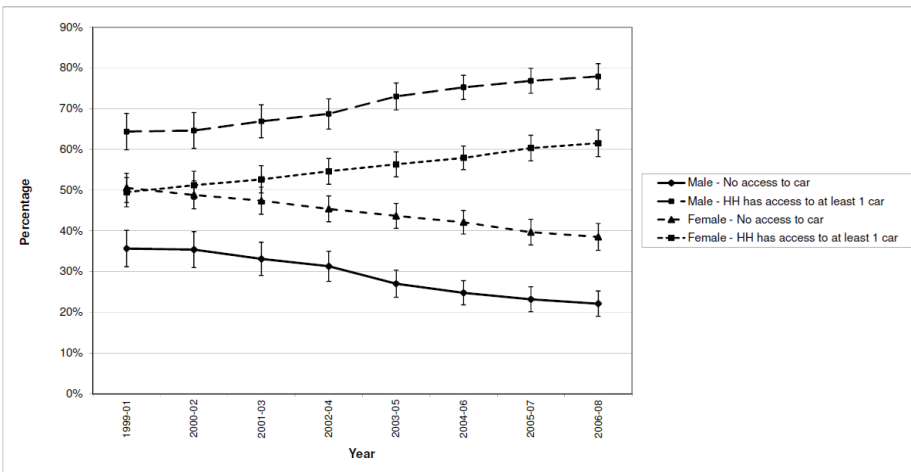
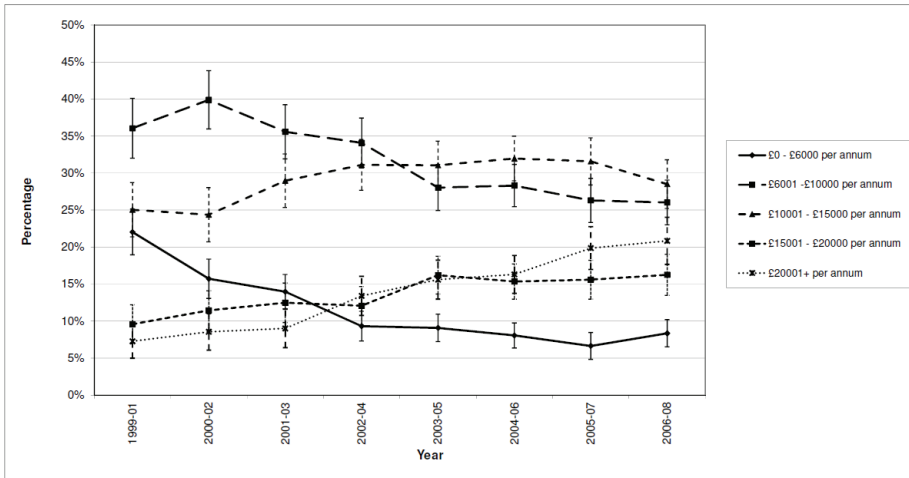


Figure 5: Percentage of older people in Scotland who are concessionary pass holders by income group from 1999 to 2008 (3-year moving averages with 95% confidence intervals)



highest income groups (£15,000 per annum and over) has increased over time, while it has declined among the lowest income group.

Although older people are eligible for concessionary travel there are differing trends between older and younger age groups. The trend of increasing driving licence holdership among older people (DfT, 2010) could be partly reflected in the increasing proportion of concessionary pass holders with a driving licence. In addition, the proportion of concessionary pass holders with access to a car has also increased over time.

The trends relating to concessionary pass holders are important to note as while rates of driving licence holding and car access is increasing among them, there is a reducing rate of driving licence holding among younger age groups, who are not eligible for free bus travel.

In terms of the effect of the Scottish NCTS on mobility after the policy became administered nationally, Table 3 shows that bus trips increased significantly among older women with a concessionary travel pass (0.25 p-value<0.1) and declined among men with a concessionary travel pass (-0.16) although not significantly. Table 4 shows that, weekly distance travelled by bus increased among older men (1.06 km) and older women (4.69 km) holding a concessionary pass, although not significantly.

Tables 5 and 6 present the results of car-driver use among older concessionary pass holders. Table 5 shows that car driver trips increased among both men and women (0.14 and 0.03 trips per week respectively), although not significantly. Table 6 shows that distance travelled as car-driver increased among older men after the policy extension (3.85 km), while it fell among older women (-2.90 km). Again, these results were not statistically significant, suggesting that the NCTS had only a small impact in shifting mode of travel from car to bus.

Overall, the mobility of older people appears to have increased by bus after the NCTS policy was applied to national travel in April 2006, in particular among older women. However, despite the provision of free bus travel through the concessionary travel scheme, the car remains important for the mobility of older people, particularly for older men.

Table 3: 'Difference-in-differences' (DID) multiple linear regression of number of bus trips per day among older people by gender controlling for income, household car access, driving licence holdership, area type, before/after concession policy, concessionary pass holdership and DID interaction

	1. Income, car access, driving licence, area type, before/after policy, concessionary pass, DID interaction for Males only			2. As 1 for Females only		
	Coef.	Confidence Interval		Coef.	Confidence Interval	
		Lower	Upper		Lower	Upper
Income (ref: £0–£6,000)						
£6,001–£10,000	0.173***	0.054	0.292	0.008	-0.062	0.078
£10,001–£15,000	0.092*	-0.031	0.216	-0.086**	-0.164	-0.009
£15,001–£20,000	0.242***	0.051	0.433	0.061	-0.052	0.174
£20,001+	0.150*	-0.031	0.331	-0.144**	-0.270	-0.018
Car access (ref: no car)						
HH has car access	-0.222***	-0.344	-0.100	-0.107***	-0.186	-0.028
Driving Licence (ref: no licence)						
Person has licence	0.037	-0.072	0.146	-0.007	-0.082	0.068
Area Type (ref: Large urban)						
Other Urban Areas	-0.119**	-0.227	-0.011	-0.062**	-0.122	-0.003
Accessible Small Towns	0.131	-0.174	0.437	0.022	-0.113	0.156
Remote Small Towns	-0.287	-0.731	0.158	-0.203*	-0.478	0.072
Accessible Rural	-0.153**	-0.283	-0.023	-0.052	-0.145	0.041
Remote Rural	0.005	-0.155	0.166	0.016	-0.092	0.124
NCTS Policy (ref: before)						
After policy	0.349	0.209	0.907	-0.112	-0.398	0.175
NCTS Pass (ref: no pass)						
Has pass	0.035	-0.099	0.168	0.008	-0.072	0.087
DID interaction						
Pass * policy	-0.160	-0.731	0.411	0.251*	-0.041	0.543
Constant	1.831***	1.672	1.991	1.936***	1.848	2.023
Number of observations	1328			3245		
R ²	0.0520			0.0234		

*** p<0.01 ** p<0.05 * p<0.1

Table 4: 'Difference-in-differences' (DID) multiple linear regression of distance travelled by bus (km) per day among older people by gender controlling for income, household car access, driving licence holdership, area type, before/after concession policy, concessionary pass holdership and DID interaction

	1. Income, car access, driving licence, area type, before/after policy, concessionary pass, DID interaction for Males only			2. As 1 for Females only		
	Coef.	Confidence Interval		Coef.	Confidence Interval	
		Lower	Upper		Lower	Upper
Income (ref: £0–£6,000)						
£6,001–£10,000	0.046	-4.280	4.373	-1.344	-3.698	1.009
£10,001–£15,000	-1.338	-5.695	3.018	-0.692	-3.443	2.060
£15,001–£20,000	-1.752	-6.465	2.962	0.037	-3.484	3.557
£20,001+	-3.649	-9.004	1.706	-0.077	-4.276	4.121
Car access (ref: no car)						
HH has car access	4.224*	-0.255	8.703	2.173*	-0.063	4.409
Driving Licence (ref: no licence)						
Person has licence	2.249*	-0.485	4.982	4.596***	1.941	7.251
Area Type (ref: Large urban)						
Other Urban Areas	4.234***	1.202	7.266	3.386***	1.428	5.344
Accessible Small Towns	15.666***	9.091	22.241	7.420***	3.852	10.987
Remote Small Towns	35.187*	-10.666	81.041	15.776**	0.577	30.975
Accessible Rural	13.267***	4.634	21.899	9.297***	5.829	12.765
Remote Rural	23.011***	10.159	35.864	38.956***	27.671	50.241
NCTS Policy (ref: before)						
After policy	1.307	-9.211	11.825	-2.124	-8.677	4.430
NCTS Pass (ref: no pass)						
Has pass	0.809	-2.523	4.140	-0.438	-3.125	2.248
Diff in diff						
Pass * policy	1.060	-10.117	12.238	4.694	-2.424	11.812
Constant	6.374***	1.414	11.334	9.352***	5.871	12.833
Number of observations	1325			3241		
R ²	0.1170			0.0885		

*** p<0.01 ** p<0.05 * p<0.1

Table 5: 'Difference-in-differences' (DID) multiple linear regression of number of car-driver trips per day among older people by gender controlling for income, household car access, driving licence holdership, area type, before/after concession policy, concessionary pass holdership and DID interaction

	1. Income, car access, driving licence, area type, before/after policy, concessionary pass, DID interaction for Males only			2. As 1 for Females only		
	Coef.	Confidence Interval Lower Upper		Coef.	Confidence Interval Lower Upper	
Income (ref: £0–£6,000)						
£6,001–£10,000	0.034	-0.146	0.214	0.182**	0.011	0.353
£10,001–£15,000	0.161*	-0.020	0.343	0.234***	0.066	0.401
£15,001–£20,000	0.172*	-0.027	0.371	0.204**	0.017	0.391
£20,001+	0.299***	0.113	0.484	0.272***	0.102	0.442
Car access (ref: no car)						
HH has car access	0.467***	0.218	0.716	0.458***	0.193	0.724
Driving Licence (ref: no licence)						
Person has licence	0.641***	0.286	0.995	0.635***	0.428	0.841
Area Type (ref: Large urban)						
Other Urban Areas	0.002	-0.122	0.125	0.049	-0.097	0.196
Accessible Small Towns	-0.164**	-0.313	-0.014	0.045	-0.195	0.285
Remote Small Towns	-0.041	-0.281	0.198	0.180	-0.149	0.510
Accessible Rural	-0.145*	-0.295	0.005	-0.248***	-0.398	-0.099
Remote Rural	-0.227***	-0.383	-0.071	-0.192**	-0.370	-0.013
NCTS Policy (ref: before)						
After policy	-0.117	-0.315	0.081	0.127	-0.117	0.372
NCTS Pass (ref: no pass)						
Has pass	-0.023	-0.134	0.089	0.118*	-0.013	0.249
Diff in diff						
Pass * policy	0.144	-0.088	0.375	0.025	-0.262	0.312
Constant	1.456***	1.053	1.858	1.272***	0.987	1.557
Number of observations	4930			3319		
R ²	0.0128			0.0346		

*** p<0.01 ** p<0.05 * p<0.1

Table 6: 'Difference-in-differences' (DID) multiple linear regression of distance travelled by car-driver (km) among older people by gender controlling for income, household car access, driving licence holdership, area type, before/after concession policy, concessionary pass holdership and DID interaction

	1. Income, car access, driving licence, area type, before/after policy, concessionary pass, DID interaction for Males only			2. As 1 for Females only		
	Coef.	Confidence Interval		Coef.	Confidence Interval	
		Lower	Upper		Lower	Upper
Income (ref: £0–£6,000)						
£6,001–£10,000	0.086	-4.804	4.975	0.472	-3.861	4.804
£10,001–£15,000	1.266	-3.430	5.962	0.407	-3.824	4.639
£15,001–£20,000	4.586*	-0.701	9.873	2.343	-2.352	7.037
£20,001+	12.863***	7.381	18.345	3.984*	-0.546	8.513
Car access (ref: no car)						
HH has car access	-9.531	-22.877	3.816	4.869*	-1.688	11.427
Driving Licence (ref: no licence)						
Person has licence	18.285***	13.627	22.943	1.937	-3.453	7.327
Area Type (ref: Large urban)						
Other Urban Areas	2.872**	-0.009	5.753	4.074***	1.249	6.898
Accessible Small Towns	11.573***	4.949	18.197	6.226***	2.863	9.589
Remote Small Towns	5.624*	-0.717	11.966	2.631	-5.621	10.883
Accessible Rural	13.758***	9.730	17.787	12.108***	8.349	15.867
Remote Rural	16.960***	11.122	22.799	13.078***	8.561	17.595
NCTS Policy (ref: before)						
After policy	-6.191**	-12.854	0.471	1.933	-4.669	8.534
NCTS Pass (ref: no pass)						
Has pass	-5.280***	-9.016	-1.544	-0.536	-3.577	2.506
Diff in diff						
Pass * policy	3.849	-3.302	11.001	-2.897	-10.138	4.344
Constant	11.241**	-0.903	23.384	8.730***	2.174	15.286
Number of observations	4925			3318		
R ²	0.0431			0.0323		

*** p<0.01 ** p<0.05 * p<0.1

Discussion

Impacts and effectiveness of the NCTS

Older car users are increasing take-up of the concessionary travel scheme. This suggests that the majority of older people with concessions may not be dependent on public transport. Thus, concessionary bus travel based on age is not effective at targeting those in need of help with bus fares. However, women have increased bus use as a result of the scheme more than men and this may go some way to counteracting overall lower mobility among older women arising from lower car use.

The results suggest that the NCTS could be suppressing potentially higher car use among older people, albeit only on a relatively small scale. This could in part reflect increasing mobility among older people over time, particularly as driving licence holding has increased. Recent research has argued that increasing mobility among older people is due to the ageing of the 'baby boomer' cohort who, generally, are associated with higher car use (Coughlin and Reimer, 2006; Coughlin, 2009). These findings may also be related to higher incomes among older people, again this is particularly associated with the boomer cohort. As this cohort ages, there will be a greater proportion of older people belonging to higher income groups being able to claim a concessionary travel pass.

The higher and increasing mobility of older people as a result of the ageing boomer cohort, compared to lower levels of mobility among younger cohorts adds to the debate regarding the appropriateness of the provision of concessionary travel to all older people based solely upon age. As the mobility of older people increases, bus use appears to be decreasing in favour of the private car.

Transport justice and older people

The justice principles assessed from a transport perspective in Table 1 are now used as a framework in which to assess the justice implications of the NCTS. This is set out in Table 7. On the one hand, older women have benefited from the scheme more than men. Since women were more mobility-constrained than men prior to the scheme, the scheme in this sense is meeting need and addressing gender inequality. On the other hand, increasing numbers of more affluent older people with access to a car are making use of free bus travel provided through the NCTS. This is happening in the face of declining mobility among young people who receive little support with the costs of bus travel and none on a nationally-consistent basis.

In meeting the activity needs of those who have a requirement to travel, the NCTS is particularly ineffectively targeted. First, the removal of commuting trips at retirement substantially reduces the need to travel, making older people a low-need group for mobility support. Second, mobility is falling among younger people but rising among older people, consistent with unmet needs rising among younger people but falling among older people.

In terms of rewarding 'just deserts', older people often undertake unpaid childcare for grandchildren, which may require travel and society may consider deserving of reward. More generally, older people usually have paid tax during their working lives and experience a drop in income at retirement so in this sense could also be seen as 'deserving'.

Table 7: Justice principles and subsidised bus travel for older people

Justice principle	Impact of the National Concessionary Travel Scheme
Activity Needs	<p>Those who have a requirement to travel:</p> <ul style="list-style-type: none"> the removal of commuting trips at retirement substantially reduces the need to travel, making older people a low-need group for mobility support; mobility is falling among younger people but rising among older people, consistent with unmet needs rising among younger people but falling among older people; to prevent loneliness and maintain social capital, older people require social contact.
Just Deserts	<p>Those who deserve to be rewarded:</p> <ul style="list-style-type: none"> older people often undertake unpaid childcare for grandchildren, which may require travel; older people usually have paid tax during their working lives and experience a drop in income at retirement.
Equal Shares	<p>Redistribution towards greater equality across groups:</p> <ul style="list-style-type: none"> the NCTS has reduced age inequality in mobility by increasing the mobility of older people; the NCTS has reduced gender inequality in mobility within the older population by increasing the mobility of older women.
Option choices	<p>Encouraging and rewarding desirable travel behaviours:</p> <ul style="list-style-type: none"> the NCTS has contributed to a shift from car to bus among older people, albeit on a small scale.
Affordability	<p>Supporting those who struggle to pay bus fares:</p> <ul style="list-style-type: none"> the NCTS has increased bus use among all income groups; however, higher-income groups among those eligible for the NCTS benefit most because they travel more than lower-income groups.

In promoting equality in mobility, the NCTS has reduced age inequality in mobility by increasing the mobility of older people. It has also reduced gender inequality in mobility within the older population by increasing the mobility of older women. In encouraging and rewarding desirable travel behaviours, the NCTS has contributed to a shift from car to bus among older people with associated environmental benefits, albeit on a small scale. In addressing affordability issues, the NCTS has increased bus use among all income groups. However, higher-income groups among those eligible for the NCTS benefit most because they travel more than lower-income groups.

Some people, of a range of ages, require support with transport mobility to avoid social exclusion. Although concessionary fares are a universal benefit and available to all those aged 60 and over in Scotland, this population group varies greatly in terms of socio-economic characteristics. Older people are widely assumed to have lower incomes as a result relying on pensions. However, many continue to participate in the labour market until a number of years beyond the age of 60, yet the universal nature of the scheme does not take this into account. Not all older people require free bus travel and many are able to access facilities and participate in social networks without welfare state assistance. The concessionary scheme could be deemed unequal as it is provided for at the expense of other age groups for whom it could be argued are in more social need of receipt of such benefits, for example due to higher levels of unemployment experienced among the youngest adults.

While the concession for older people is protected by national statute, concessionary fares that are available for younger people are discretionary and have been cut by local authorities in conjunction with the rising cost of public transport. This cost is becoming a barrier for younger people accessing transport (Bourn, 2013).

Transport as a welfare service

For some, transport has an important role to play in avoiding social exclusion, such as younger people (including getting jobs and training), disabled people, women and older people (Lucas, 2004). Therefore, transport policy needs to be considered as of relevance to, even an integral part of, the welfare state. Considerable sums of public (and private) money are invested in transport infrastructure, services and concessionary fares. The analysis reported in this paper has demonstrated that the benefits of concessionary fares are unequally distributed, and this is also likely to be the case of investment in transport infrastructure and services. Some groups in society will benefit more than others. Given the central implications of transport for wellbeing and equality, transport policy is a crucial, but rather neglected and perhaps ‘Cinderella’, policy area in relation to understanding poverty and social justice.

Notes

¹ Difference-in-difference multiple regression models compare changes in behaviour between two time periods and two groups for a simple setup. The ‘intervention’ group is exposed to a ‘treatment’ in the second period but not in the first. The ‘control’ group is not exposed to ‘treatment’ during either period. For more details see Tilley (2013).

Acknowledgements

This work was supported by the Economic and Social Research Council via studentship reference ES/H01599X/1, as well as MRC McLean Hazel. The authors wish to thank Dr Steve Cassidy for his input in guiding the data analysis.

References

- Andrews, G, 2011, *Just the ticket? Exploring the contribution of free bus fares policy to quality of later life*, PhD Thesis, Bristol: University of the West of England
- Baker, S, White, P, 2010, Impacts of free concessionary travel: Case study of an English rural region, *Transport Policy* 17, 20–6
- Bourn, R, 2013, *No entry! Transport barriers facing young people: Government policy hits young hardest*, London: The Intergenerational Foundation
- Church, A, Frost, M, Sullivan, K, 2000, Transport and social exclusion in London, *Transport Policy* 7, 195–205
- Clifton, K, Lucas, K, 2004, Examining the empirical evidence of transport inequality in the US and UK, in K Lucas (ed) *Running on empty: Transport, social exclusion and environmental justice*, Bristol: Policy Press
- Coronini-Cronberg, S, Millett, C, Lavery, AA, Webb, E, 2012, The impact of free older persons’ bus pass on active travel and regular walking in England, *American Journal of Public Health* 102, 11, 2141–8
- Coughlin, JF, 2009, Longevity, lifestyle, and anticipating the new demands of aging on the transportation system, *Public Works Management and Policy* 13, 4, 301–11

- Coughlin, JF, Reimer, B, 2006, New demands from an older population: An integrated approach to defining the future of older driver safety, in *Proceedings of the Society of Automotive Engineers Convergence Conference*, Detroit, MI.
- Dargay, J, Liu, R, 2010, *Concessionary fares project report 6: Analysis of the National Travel Survey Data*, London: Department for Transport (DfT)
- DfT (Department for Transport), 2010, *National Travel Survey: 2010 Driving licence holding and vehicle availability*, London: DfT
- Farrington, J, Farrington, C, 2005, Rural accessibility, social inclusion and social justice: Towards conceptualisation, *Journal of Transport Geography* 13, 1–12
- Gov.uk, 2013, *Benefits and credits: The basic state pension*, www.gov.uk/state-pension
- Graham-Rowe, E, Skippon, S, Gardner, B, Abraham, C, 2011, Can we reduce car use and, if so, how? A review of available evidence, *Transportation Research Part A: Policy and Practice* 45, 401–18
- Gray, D, Shaw, J, Farrington, J, 2006, Community transport, social capital and social exclusion in rural areas, *Area* 38, 89–98
- Gray, D, Farrington, JH, Kagermeier, AI, 2008, Geographies of rural transport, in R Knowles, J Shaw, I Docherty (eds) *Transport geographies: Mobilities, flows and spaces*, Oxford: Blackwell Publishing
- Gwynn, RC, Thurston, GD, 2001, The burden of air pollution: Impacts among racial minorities, *Environmental Health Perspectives* 109, 501–6
- Headicar, P, 2009, *Transport policy and planning in Great Britain*, Abingdon: Taylor and Francis
- Hess, D, 2012, Walking to the bus: Perceived versus actual walking distance to bus stops for older adults, *Transportation* 39, 247–66
- Higgs, P, Gilleard, C, 2010, Generational conflict, consumption and the ageing welfare state in the United Kingdom, *Ageing and Society* 30, 1439–51
- Hine, J, Mitchell, F, 2003, *Transport disadvantage and social exclusion: Exclusionary mechanisms in transport in urban Scotland*, Farnham: Ashgate
- Hirst, E, Harrop, B, 2011, *Getting out and about: Investigating the impact of concessionary fares on older people's lives*, Manchester: Transport Action Group
- Humphrey, A, Scott, A, 2012, *Older people's use of concessionary bus travel*, London: NatCen Social Research for Age UK, www.natcen.ac.uk/media/28438/concessionary-bus-travel.pdf
- Ihlanfeldt, KR, 1993, Intra-urban job accessibility and Hispanic youth employment rates, *Journal of Urban Economics* 33, 254–71
- Liu, CY, Painter, G, 2011, Travel behavior among Latino immigrants: The role of ethnic concentration and ethnic employment, *Journal of Planning Education and Research* 32, 62–80
- Lucas, K, 2004, *Running on empty: Transport, social exclusion and environmental justice*, Bristol: Policy Press
- Lucas, K, Jones, P, 2009, *The car in British society*, London: RAC Foundation
- Marsden, G, Jopson, A, Cattam, M, Woodward, J, 2008, *Older people and transport: Integrating transport planning tools and user needs*, executive summary, Leeds: Strategic Promotion of Ageing Research Capacity (SPARC), Institute of Transport Research University of Leeds, Centre for Health Promotion Research Leeds Metropolitan University
- Metz, D, 2010, Saturation of Demand for Daily Travel, *Transport Reviews* 30, 659–74

- Mindell, J, Karlsen, S, 2012, Community severance and health: What do we actually know?, *Journal of Urban Health* 89, 232–46
- Noble, B, 2000, Travel characteristics of older people, *Transport Trends 2000 Edition*, London: Department of the Environment, Transport and the Regions (DETR)
- Owen, D, Green, AE, 2000, Estimating commuting flows for minority ethnic groups in England and Wales, *Journal of Ethnic and Migration Studies* 26, 581–608
- Páez, A, Scott, D, Potoglou, D, Kanaroglou, P, Newbold, KB, 2007, Elderly mobility: Demographic and spatial analysis of trip making in the hamilton CMA, Canada, *Urban Studies* 44, 123–46
- Pooley, CG, Turnbull, J, Adams, M, 2005, *A mobile century? Changes in everyday mobility in Britain in the twentieth century*, Farnham: Ashgate
- Power, A, 2012, Social inequality, disadvantaged neighbourhoods and transport deprivation: An assessment of the historical influence of housing policies, *Journal of Transport Geography* 21, 39–48
- Preston, J, Rajé, F, 2007, Accessibility, mobility and transport-related social exclusion, *Journal of Transport Geography*, 15, 151–60
- Raphael, S, 1998, The spatial mismatch hypothesis and black youth joblessness: evidence from the San Francisco Bay Area, *Journal of Urban Economics* 43, 79–111
- Risser, R, Haindl, G, Ståhl, A, 2010, Barriers to senior citizens' outdoor mobility in Europe, *European Journal of Ageing* 7, 69–80
- Rosenbloom, S, 2004, Mobility of the elderly: Good news and bad news, in *Conference Proceedings: Transportation in an Aging Society: A Decade of Experience*, pp 3–21, Washington, DC: Transportation Research Board
- Rosenbloom, S, 2006, Understanding women's and men's travel patterns, in *Research on Women's Issues in Transportation: Report of a Conference*, pp 7–28, Washington, DC: Transportation Research Board
- Rye, T, Carreno, M, 2008a, *Concessionary bus fares in Scotland: Is the Scottish government paying too much?*, Glasgow: Scottish Transport Applications Research (STAR) Conference
- Rye, T, Carreno, M, 2008b, Concessionary fares and bus operator reimbursement in Scotland and Wales: No better or no worse off?, *Transport Policy* 15, 242–50
- Rye, T, Mykura, W, 2009, Concessionary bus fares for older people in Scotland – are they achieving their objectives?, *Journal of Transport Geography* 17, 451–6
- Scottish Government, 2009, *Review of the Scotland-wide free bus travel scheme for older and disabled people*, Edinburgh: Scottish Government
- SEU (Social Exclusion Unit), 2003, *Making the connections: Final report on transport and social exclusion*, London: SEU
- Shergold, I, Parkhurst, G, 2012, Transport-related social exclusion amongst older people in rural Southwest England and Wales, *Journal of Rural Studies* 28, 412–21
- Su, F, Bell, MGH, 2012, Travel differences by gender for older people in London, *Research in Transportation Economics* 34, 35–8
- Tacken, M, 1998, Mobility of the elderly in time and space in the Netherlands: An analysis of the Dutch National Travel Survey, *Transportation* 25, 379–93
- TAS Partnership Ltd, 2012, New bus fare survey shows rises below inflation despite fuel cost explosion, www.tas.uk.net/content/index.php/news/87-new-bus-fare-survey-shows-rises-below-inflation-despite-fuel-cost-explosion
- Tilley, S, 2013, *Ageing and Mobility in Britain: Past trends, present patterns and future implications*, PhD Thesis, St Andrews: University of St Andrews

- Transport Scotland, 2009, *Evaluation of national concessionary travel in Scotland*, carried out by the Halcrow Group Limited, Transport Research Series, Glasgow: Transport Scotland
- Webb, E, Netuveli, G, Millett, C, 2012, Free bus passes, use of public transport and obesity among older people in England, *Journal of Epidemiology and Community Health* 66, 176–80
- Wennberg, H, Ståhl, A, Hydén, C, 2009, Older pedestrians' perceptions of the outdoor environment in a year-round perspective, *European Journal of Ageing* 6, 277–90
- Wier, M, Sciammas, C, Seto, E, Bhatia, R, Rivard, T, 2009, Health, traffic, and environmental justice: Collaborative research and community action in San Francisco, California, *American Journal of Public Health* 99, S499–S504
- Willetts, D, 2010, *The pinch: How the baby boomers took their children's future-and why they should give it back*, London: Atlantic Books