Transport and social exclusion: New policy grounds, new policy options

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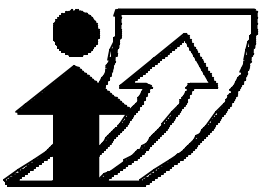
Keynote paper



Moving through nets:
The physical and social dimensions of travel
10th International Conference on Travel Behaviour Research
Lucerne, 10-15. August 2003

Transport and social exclusion: New policy ground, new policy options

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Abstract

The advent of highly distributed information communication technologies is having both a direct and indirect effect on the domain of 'transport studies'. This presentation discusses these effects and makes suggestions for improving the field of 'social transport policy' with particular reference to developments in the United Kingdom.

Social deficits in transport provision become more measureable through the new information communication technologies whilst at the same time new information communication technologies have the potential for affording more efficient and better organised social transport.

In exploring the contemporary relationship between transport and social exclusion, the development and implementation of 'social technologies' designed to provide benchmark levels of active citizen participation demands attention. Demand responsive transport systems developed on an intelligent technology footing can ensure that accessibility and mobility constraints to essential services are removed or minimised in line with identified benchmark levels of citizen entitlement.

Ensuring low income in-home and in-journey connectivity to information and services, including back up transport services when scheduled services fail, can reduce unnecessary travel and make necessary travel more effective and efficient.

Keywords

Social exclusion, International Conference on Travel Behaviour Research, IATBR

Preferred citation

Grieco, M.S. (2003) Transport and social exclusion: New policy grounds, new policy options, paper presented at the 10th International Conference on Travel Behaviour Research, Lucerne, August 2003.

1. 'Social aspects of transport' to 'transport as social policy': Making the connection with the Social Exclusion Unit.

Historically, nobody has been responsible for ensuring that people can get to key services and employment sites. As a result, services have been developed with insufficient attention to accessibility. And too often, accessibility has been seen as a problem for transport planners to solve, rather than one that concerns and can be influenced by other organisations, for example by locating, designing and delivering services so that they are easily and conveniently available. Making the connections: Final report on Transport and Social Exclusion Unit, Office of the Deputy Prime Minister, United Kingdom. February, 2003:3

More recently, policy-makers have 'picked up' the concept of accessibility as a way of approaching social inclusion - a key Government goal. Professor John Farrington, Aberdeen University - 2003 (on Napier University's Transport Research Institute web site)

In the light of these conceptual and practical issues it is, perhaps, not surprising that much of the current research on social exclusion and transport, should concentrate on questionnaires and focus groups applied at the level of individuals and households. This approach is, of course, essential to the understanding of how individuals respond to the opportunities that may be open to them. However, in the absence of an objective assessment of transport accessibility to key activities this type of analysis will give only a limited appreciation of the extent to which transport factors may permit or limit the ability of individuals living in areas experiencing high levels of social exclusion to connect with opportunities, and the weight that should be given to transport factors in defining strategies for tackling social exclusion. Church et al, Transport Policy, 2000.

Transport trends (ONS, 2003) argues that 'the availability of bus services is fairly good overall' on the grounds that nearly 90% of households in Britain live within 13 minutes walk of a bus stop with a service at least once an hour. However, such a measure is at best a crude proxy for the ability of individuals to use such bus services in order to adequately participate in society. The measure takes no account of physical and financial barriers to people using the bus nor does it reflect whether service routes map onto destinations in people's daily routines or whether, for the part time worker, the hourly service is running in the morning or late at night when they need to use it. Glenn Lyons, 2003 Inaugural Professorial Lecture: Transport and Society

New information communication technologies have generated new transparencies in public service and public sector performance. Increasingly, patterns of performance are recordable in real time, and with automatic archiving of data, available for future review (Grieco, Holmes and Hosking, 2002). The exchange of information across government departments and between multiple agencies is no longer technically difficult: the boundaries of information exchange which traditionally preserved separate and autonomous bureaucratic domains and territories are under erosion. In the world of administration, government and governance, the discussion is now of 'joined up government' and, indeed, of late with the war on terror, of joined up global government. Integrated planning is now on the policy table and transport planning undoubtedly features within this integration.

There is, however, a present policy paradox and one which is very evident in the transport sector of the United Kingdom: at the same point in time as information overview across economy, polity and society is both possible and practical at very low transaction costs, direct public sector provision of services has been rolled back. Government and governance, still public sector activities albeit increasingly within the language of 'partnership, hold responsibility for social efficiency i.e. attacking poverty and reducing social exclusion, but must deliver this through a market of private institutions over which they increasingly have no direct control. Accurately measuring social exclusion and its relationship to transport organisation in the information age is an increasingly easier business; directly addressing the social, economic and political deficits so measured is problematic.

The policy temptation to undermeasure accessibility and mobility deficits in such a context is a very real one: this presentation provides direction on how to ensure such a temptation is not embraced and indicates innovative approaches to transport organisation and provision open to government even within predominantly market arrangements which can effectively generate a healthier relationship between transport organisation and social exclusion and, its counterpart, social inclusion.

The discussion of 'social exclusion and transport' is both an old and a new topic: discussions of transport disadvantage and its consequences for the quality of life of the vulnerable and the poor were had before the terms 'social exclusion' and 'social inclusion' were in play (Grieco, 1994, 1995). The terms 'social exclusion' and 'social inclusion' are used as a form of short hand to capture an understanding of the social, political, economic and institutional processes which accompany and generate civic disadvantage (Church et al., 2000; Hine and Mitchell, 2001): the usefulness of the terms is that they signal an active policy concern by governments, such as the British and South African, and international agencies, such as the World Bank (a major sponsor of this new language), with ensuring the full civic participation of vulnerable

groups. It is in essence a commitment to evaluate social processes and correct process deficiencies and not simply measure outcomes: it requires the development of active policies of intervention to repair exclusion and improve inclusion where deficits are identified.

On the ground, however, and in spite of its promise, transport and social exclusion and social inclusion research is relatively weak in its appreciation of process and equally weak in its determination of what should be measured (Church et al., 2000). This should not surprise us: the policy drive for an appreciation of the relationship between transport and social exclusion and social inclusion has happened in a context where insufficient attention has been paid to poverty mapping, accessibility mapping and mobility mapping and, indeed, to the interrelationships between these domains.

The new policy ground is one in which the lack of access to services is seen both as a result of and as a reinforcement of social exclusion (Social Exclusion Unit, 2003): there is now a clear policy recognition that there is a problem in terms of low income access to key services and that both present land use patterns and current transport organisation play an important part in the constitution of this problem. Within the United Kingdom, a set of government commissioned reports now set out this case (Hine and Mitchell, 2001; Social Exclusion Unit, 2003; DTLR, 2001): but each of these reports has relied on the recording of and analysing the responses of low income respondents on their transport experience rather than undertaken the systematic measurement of the accessibility of key services to the citizens of low income areas or specific vulnerable social categories in whatever neighbourhood these are to be found or, however, scatterered the distribution of the membership of these vulnerable social categories.

The quality of mapping undertaken to date is very poor: to give an example from the United Kingdom where the 'transport and social exclusion' discourse is in process, the Index of Multiple Deprivation which provides the base poverty mapping statistics has a very restricted accessibility component and this accessibility component is not weighted in terms of public transport availability or car ownership statistics (Hine, Turner and Grieco, 2003). The four accessibility items presently included are access to a food store, to primary health care, to a primary school and to a post office.

This accessibility criteria is overly restrictive as a measure of social deprivation or social exclusion and has many readily identifiable flaws: for example, this accessibility criteria does not distinguish between full opening hours and restricted opening hours thus a low income area in which a doctor's surgery is only open on a part-time basis would not register as particularly disadvantaged on this measure - and the absence of a pharmacy, a facility necessary to put a doctor’s recommended medication into practice, is not registered at all. Interestingly,

such a situation is to be found in Barton, a low income community on the periphery of Oxford which in addition to its many other deprivations is also subject to severance as a consequence of highway design which separates it from the city of Oxford - interestingly, because it was at the University of Oxford that the Index of Multiple Deprivation was developed. The most superficial of scoping studies on accessibility measurement in peripheral low income estates - an appropriate methodology if the measurement of social exclusion is the goal - in Oxford would have given guidance on the importance of time issues: part time surgeries can add to deprivation by creating confusion as to opening hours and lead to either subverted trips i.e. journey made but treatment not received as facility closed, or suppressed trips i.e. uncertainty about surgery hours results in trip foregone.

The low ranking given to accessibility considerations within the Index of Multiple Deprivation serves to disguise very real and very measureable social exclusion issues: communities of 10,000 without access to a doctor in the immediate residential locality would add little to their multiple deprivation score despite the clear social exclusion consequences of such a situation. This has been the case for Lemington at the West End of Newcastle: not only do residents not have a local doctor available to them but members of the same household are not necessarily on the same doctor's list creating complex patterns of household illhealth, sickness and escort journeys. The under-registering or under-recording of accessibility components of deprivation within the Index of Multiple Deprivation also results in the under recording or under-registering of measures that can be taken to repair social exclusion. Identifying health states of communities as part of the Index of Multiple Deprivation without identifying the corresponding patterning of the services available to manage or repair sickness or ill health in those communities makes little sense.

Both sets of information are necessary to the development of social policy solutions for the reduction of social exclusion - and identifying the pattern of available services necessarily involves the identification of local accessibility and mobility dimensions. Transport (mobility) and its substitutes, the physical provision of the range of key services at the immediate local level (accessibility) and the provision of the range of key services electronically (connectivity), require their proper integration into any measure of multiple deprivation - identifying outcomes without identifying the processes which produce them does not fit well with a 'social exclusion' or 'social inclusion' vision.

The view on solutions to the problem of social exclusion and its reduction is much affected by the past absence of systematic measurement: however, within the Government's key report on Transport and Social Exclusion (Social Exclusion Unit, 2003), there are signs of change. In the embrace of accessibility audits advocated by this report, and the declared intention of re-

quiring accessibility audits within Local Transport Plans, there is now an attempt to develop and promote more appropriate methodologies for the measurement of the interaction between transport and social exclusion in the United Kingdom.

Accessibility audits and systematic accessibility planning, with an explicit social inclusion and social exclusion dimension, move transport out of a 'social aspects' framework and into a more thorough 'social policy' framework. The present policy paradox is, as we have already remarked, that the recognition of the role that transport organisation and land use organisation can play in reducing or intensifying social exclusion has occurred at precisely the point at which the government's portfolio of direct means of intervention - municipal transport, social housing, public sector employment - have been subject to radical erosion.

In line with this weakened capacity for direct intervention, guidance on how accessibility audits should be conducted is very weakly given. Both in the new Scottish policy literature (Scottish Executive: http://www.scotland.gov.uk/consultations/transport/stag-30.asp) and in the new English policy literature (Social Exclusion Unit, 2003) on the need to develop accessibility audits and accessibility planning, there is very little guidance on how accessibility audits should be undertaken. And in neither literature is there any suggestion that accessibility audits should be directly integrated into the major new tool for assessing social exclusion or social inclusion - the Index of Multiple Deprivation. The current direction seems to be one in which each local authority will conduct its own accessibility audits within localities within its immediate governance without any formal co-ordination between authorities on protocols, without any attempt to generate systematic comparisons between localities and with no attempt being made to integrate this body of social inclusion or social exclusion evidence into a cohesive national framework.

A small peak behind the British policy curtain into the discourse on accessibility audits, accessibility measurement and accessibility planning conducted within the Select Committee on Transport gives an insight into the present pattern of disarray:

> *Mr Gurumurthy (Social Exclusion Unit) We said one of the ideas under consideration is to have local targets on accessibility which would be measured by a basket of indicators.*
>
> *Mr Stevenson (Parliamentarian)*
>
> *507. And who should set those targets? Should it be Government or should it be the local authorities themselves?*
>
> *(Mr Gurumurthy) At the moment I think it would be very foolish to say "here is a national standard on accessibility" because, given the geography, that*

> *would vary so much between urban and rural areas. What we are saying is that potentially you could have a national requirement for local areas to develop a baseline and set targets.*
>
> http://www.parliament.the-stationery-office.co.uk/pa/cm200102/cmselect/cmtlgr/828/2052108.htm

In the Social Exclusion Unit report (2003) itself, guidance is largely given by reference to the 'best practice' of East Surrey in terms of mapping accessibility to a hospital during peak hours between Monday and Friday. Even, in this example, some of the problems of 'transport and social exclusion' are concealed even as others are revealed. The sensitivity of accessibility to time of day is important (Lyons, 2003): using the hospital as an example, pressures on the health system result in patients being discharged outside of peak hours and illness as an experience does not respect the normal hours of the business day. Furthermore, normal peak hours would not cover visiting times for patients' relatives - and there is indeed evidence that access of patients to relatives has consequences for their better health.

Independent of whether access to relatives has a positive consequence for repair from the damage of illness - accessibility restrictions on patients' personal relationships represents a ground of social exclusion. Public transport accessibility measurement has to be compared against car based accessibility measurement for the full range of time slots and where dramatic differences are present and there is a measureable unmet need for services, there is also a need to ensure that widely available alternative community, volunteer or special services are organised as a responsibility of government.

For an accessibility audit to trully do its work in terms of health, we would need to see how the shape of the results varies by time of day and indeed by day of the week and, equally, by mode. Large differences in time taken by public transport modes as compared with car based journeys can usefully be harnessed in the re-design of routes: lengthy, meandering routes can and do constitute substantial barriers to key services. Such routes are more often a feature of the peripheral urbanoid housing estates which were developed in the expectation of high quality, high frequency, direct routes connecting to city centres but where public transport provision has been rolled back and reduced with privatisation.

To use a term developed in the South African discourse on transport and social exclusion, these estates experience 'stranded mobility': the social planning logics which informed the development of peripheral housing estates have been subverted by the altered organisation and reduced quality of public transport provision. Low physical accessibility of services was meant to be compensated for by high reliability and frequency of direct public transport - and on this basis, whole communities of low income families were moved from city centres and

adjacent neighbourhoods to greenfield 'homes with gardens' (historically, 'homes for heroes'). Communities which had ready access to the history and culture of their cities through residential proximity now required a bus to get to the premier public services and cultural spaces - and when the buses disappeared or time barriers were erected as routes were lengthened so as to cover multiple estates with fewer buses, they were stranded.

This simple example of capturing time of day accessibility contours and mobility constraints gives some idea of the extent to which great care is needed in ensuring the components identified for measurement to trully capture the social exclusion and social inclusion experience. Similarly the accessibility mapping of the East Surrey hospital, to stay with this example, appears to be premised on the assumption that public transport services run to schedule: within a hospital record system, information could be relatively easily obtained on how long actual journeys took and these could be used to identify journey problems which chart against post codes. Indeed, new information communication technologies could be used to accomplish this: Harvey Miller (2003) in his presentation to this meeting provides us with a range of suggestions as to how new information communication technologies such as personal digital assistants (PDAs) can be used to track and utilise the travel and scheduling experience of target groups in addressing social exclusion.

The rationale for opting for such fine tuning is that according to the Social Exclusion Unit (2003) report over 1.4 million people in a twelve month period miss or do not seek health appointments because of transport difficulties: missed appointments not only have consequences for the quality of lives of those who miss the appointments but also generate costs for the health service itself. Mapping public transport schedules for peak hours as a measure of access to a hospital may not capture the crucial dimension of travel cost as a barrier to service use: the cost of travel in peak hours can be substantially higher than the cost of travel outside of peak hours and may act to deter and cause those in need of health care to suppress their journey. Furthermore, uncertainties attend the time taken for treatment - patients expecting to have finished with their appointment in cheap travel time may find themselves held over into peak travel time when discount tickets are not useable. The time and resource buffer needed to attend a hospital appointment by a low income patient needs to be factored into accessibility analyses (Grieco, 1995): an alternative approach of course would be to organise hospital anchored demand responsive transport which guaranteed patients a fast homeward journey without additional expense.

The public transport journey has a set of features which interact with transport and social exclusion: most importantly, however, is that where accessibilities have been audited and found inadequate there are resources for making good the deficiencies. The issue of funding the re-

pair of measured deficiencies is perhaps the greatest problem on the transport and social exclusion agenda. Measuring accessibility or mobility or connectivity deficits in the context of activity deficits - societally determined unmet needs - has little utility if the changes in spatial, transport and connectivity organisation necessary to the pursuit of activities is not undertaken.

Within the Social Exclusion Unit report (2003), there is no attempt to systematically investigate the ways in which new information communication technologies can be used to counteract and compensate for the accessibility deficits imposed upon communities marginalised by the policies and practice of centralising key activities, resources and services outside of local neighbourhoods. The lack of any extended discussion of virtual mobility options in a report on transport and social exclusion is a major problem within this report: increasingly, the importance of examining virtual and physical mobility options within the same integrated transport and communications framework is recognised (Miller, 2003; Kenyon, 2002; Kenyon et al, 2002; Hine, Turner and Grieco, 2002).

> *The connectivity provided by both transport and computer networks is ultimately about providing their users with **access** enabling participation in society. This suggests strongly that, with the transport network's capacity to provide society with access now stretched close to the limit, the capacity of computer networks must now play a key role in providing access. In effect, **virtual** mobility, or more specifically virtual access should form **part of** an integrated transport strategy.* Glenn Lyons, 2003 Inaugural Professorial Lecture: Transport and Society

The importance of virtual mobility considerations within an accessibility framework is critical especially when it is recognised that accessibility deficits have been matched by the simultaneously reduction of mobility options (stranded mobility) to these same communities. The cutback in public sector transport provision - privatisation - in Britain was accompanied by the lengthening of routes with increased journey times as more social housing areas were penetrated by the same routing as opposed to a larger number of more direct routes. Longer routings, especially in the context of urban and sub-urban congestion, generate longer delays and for many making the journey from 'suburban' social housing to key activities - which are increasingly to be found outside of the locality - these journeys have accessibility times which compare very poorly with the historic journey time and service and extremely poorly with private car based journeys.

Whilst there is no national mapping of the patterns of reduction in services (an historic accessibility audit) available to low income communities since the privatisation of bus based British public transport, there is a mapping of the withdrawal and reduction of evening services in Merseyside provided by Merseytravel which demonstrates the dramatic character of reduction

in services available to many low income areas and this mapping is provided inside of the Government's key report on transport and social exclusion (Social Exclusion Unit 2003:25). This withdrawal of evening services has consequences for health and social life and culture in low income areas: it should alert us to the importance of including time of day data in our measurement of accessibility not least because sociability options are largely unconsidered within the British social exclusion and transport policy framework. Connectivity as a substitute for restricted local accessibility or truncated or stranded mobility requires explicit policy consideration.

Connectivity can enable the ready location of escorts to cross dangerous public spaces, provide rapid information on real time flexible travel options provided through volunteer networks or community transport and generally contribute to a virtuous spiral of relocalisation of social activities. Currently, and to talk in real terms, communities which were provided with state of the art community centres subsequent to social riots such as the Riverside estate to the east of Newcastle in order to ameliorate highly visible levels of deprivation have no access to the facility of an evening as the premises are closed due to the unwillingness of professional youth workers to work in the area of an evening. On an accessibility measure which is not time sensitive, this community centre would over-represent the available social facilities within the area. Similarly, within Barton in Oxford there is a doctor's surgery within the new purpose built community centre but, as we have already remarked, this surgery operates part time hours and there is no receptionist even to take bookings outside of these part time hours. Showcase social policy which delivers infrastructure without ensuring the practice of activity is a consequence of many institutional factors: very often obtaining resources for capital projects is easier than obtaining the revenue necessary to keep services operating. New bus stations, fewer socially necessary bus services, such juxtapositioning in social policy is not unusual and signals that the participation of the 'excluded' in service design continues to be the case.

Simply locating a facility within an area does not represent a reduction in social exclusion: ensuring that a facility operates to meet real local requirements is critical. Not too far away from the Riverside centre, the Moor Park Community Centre has operated on a volunteer basis running a full range of daytime and often evening programmes in a social housing area bereft of facilities: transport services to this facility are poor, most particularly, in the evenings. Networking Moor Park together with an intelligent demand responsive transport facility run on a community transport template would build on the existing strong social capital or volunteer basis which accompanies the social exclusion experience of many in the dismantled colliery and shipping communities of the North of England.

The assumption that social exclusion is a register of social incompetence lies lightly buried in much of the policy discourse on social exclusion and social inclusion: the social capital competences of stranded communities in the North East of England - as with many deprived communities - belie this. Given the physical and economic stranding of these communities, they have been forced into a whole suite of community self-help measures which receive little policy attention such as food clubs and fuel clubs through which their individual housing budgets can be better stretched to meet survival needs. Indeed, there are forms of transport clubs already present in group purchasing of package holidays abroad: alarmingly, many within these communities find the transport systems of their foreign holiday destinations easier to navigate than that of their locality even with the barrier of language. Given the social capital bases present in such places, and with the organisation of community connectivity, new forms of transport organisation developed around community transport clubs could be implemented which better connected such communities with key activities.

Connectivity can be used to bring services into areas such as Moor Park: and, indeed, given the current policy discussion on the reduction of social exclusion and the importance of local partnership in such programmes, it can be reasonably argued that connectivity is a critical dimension in terms of gaining the relevant body of political and policy information necessary for localities to shape their partnership bids. Connectivity increasingly becomes a sine qua non for partnership within transport policy as well as within the full range of policy domains of the 'joined up government project': not to be connected to information on sources of government funding for community projects is to be socially excluded. Obtaining community funding under the panoply of present government partnership schemes which require communities to actively bid for resources rather than simply meet criteria which automatically entitles communities to resources (benchmark public service levels) requires the constant updating of information on emerging opportunities and the administrative capabilities to process the various partnership documents most often on a volunteer basis. Participation in the urban bus challenge is no guarantee that a community will be rewarded for the costs it has incurred: lowering the costs of bidding requires connectivity.

In the context of poor accessibility and poor mobility, virtual mobility can play an important role not only in obtaining services within the home or area of residence but also in rescheduling activities outside of the locality. Rescheduling hospital appointments through an intelligent reservation system provides an obvious example of one critical way in which virtual mobility can assist in lessening 'transport and social exclusion' effects. Obtaining health services in home through technology is already a practicality for many, most particularly within Scandinavia and even within the UK. Accessibility audits will increasingly have to take account

of the demography of electronic connectivity not least in the health sector where tele-health is fast developing (Lyons 2003).

To return for the moment to the Merseytravel mapping of the historic availability of evening services against current greatly reduced coverage of the geographical area, the inclusion of a measure of past performance against present performance is an important element of auditing in the context of transport and social exclusion. Accessibility audits could provide communities with an evidenced-based understanding and record of how present transport organisation performance compares with the past and could feed into partnership discussions about community prioritisation of resources.

In conducting accessibility audits, there is a need for considerably more refined thinking than is yet on the table: take the measured public transport accessibility to the East Surrey hospital, for example, and consider whether the hospital is designed simply as a heath facility or a location for a bundle or grouping of essential activities. Hospital concourses can be designed with banks, food shops, clothes shops, internet connections, pharmacies, restaurants, creches and quality transport interchanges all being present in the one concourse structure: indeed, Addenbrooke's hospital in Cambridge has many of these facilities already present. 'Time poor" visitors can organise a whole range of essential activities within the one location including using free internet access to gain information on the sicknesses of their relatives - indeed ambulant patients can use this service to overview information on their own sickness.

In discussing transport and social exclusion and social inclusion, the geographical spread of the set of essential activities has consequences: travel times and distances have consequences for the density of scheduling. Accessibility audits have to take account of the spread of activity locations to be useful: an accessibility audit which does not distinguish between a hospital where a whole set of activities can be undertaken and a hospital where only the health trip is performable is inadequate for the analysis of tranport organisation in relation to social exclusion and social inclusion. Activity auditing key destinations and points of interchange offers a superior approach.

The hospital as a natural location for a whole set of activities is a recognition of the role that women play both as carers and as household managers. The dual role of women as workers and household managers and carers creates scheduling densities and time burdens which are different in the main to those of men: the portfolio of activities that can be undertaken at a hospital such as Addenbrooke's in Cambridge has very real consequences for reducing the scheduling burden of women. The current discussion of accessibility audits and accessibility planning has begun to focus on the importance of land use planning: activity planning can, however, as this hospital example indicates happen, at a lower level of scale than previously

considered and with important consequences for improving the present relationship between transport organisation and social exclusion and social inclusion.

The British government's encouragement of locally authored, locally funded and locally applied accessibility planning is likely to generate a considerable industry of accessibility planning consultancies and university researchers. Ready made packages for accessibility planning are already on the market (Citilabs: http://www.citilabs.com/accmap/) and their take up, given the policy pressure to adopt accessibility planning, is likely to be substantial. The packages which exist are largely of the type described in relation to the East Surrey hospital and are low on the social process content necessary for addressing social inclusion and exclusion. Measuring the journey time between a social housing estate and a hospital does not give us an indication of the number of persons a single mother may have to involve in her decision to attend a hospital appointment or more dramatically transport her child to hospital in an emergency (Grieco, 1995, Carter and Grieco, 2000).

Equally, an elderly person may need an escort on a journey to hospital and without the escort may be unable to make the journey: ironically, even tragically, there are dial a bus or social transport schemes which do not permit the elderly to use the vehicle to attend hospital appointments such as Nexus in Newcastle or Bulwell , Nottinghamshire (Social Exclusion Unit 2003:15) as a result of the lack of integration between health and transport agencies and the desire of each agency to make sure that the other bears its full cost of the 'burden'. Indeed institutional factors such as lack of integrated ticketing, commercial regulations about competition which preclude transport providers cooperating to provide quality social transport provision, and many others populate the world of low income transport (SEU, 2003).

Identifying the social dimensions of journeys, such as personal security, journey length and its consequences for the incontinent seeking medical help, and the decision matrices in which these take place are important as the infrastructure of mobility itself.

Two dimensions of accessibility require consideration in developing a robust methodology which can be used for national comparative policy purposes.

Firstly, a methodology which recognises compound accessibility problems is called for. There is a need to identify a benchmark set of key activities and corresponding activity locations for identifiable social categories and to measure the respective localisation coefficients at a sufficiently low level of locality of the spatial hierarchy to capture tensions between the locations of key services. Accessibility to pharmacy and accessibility to general practitioners or hospital requires locational planning which respects the links between activities. Inside this location of activity planning frame, new information communication technology can play its part - the

provision of in-home facilities for the ordering and delivery of a prescription, for example, could overcome the extra journeys typically imposed upon the low income, service deprived, time poor carer or patient. Tele-options can be plugged into accessibility analyses - and should be.

Secondly, post code data held at activity locations can be utilised to identify whether there is substantial over-representation or under representation from particular post codes and this can be combined with other demographic data. In public sector organisations, this should be relatively easy: if accessibility planning is to work in a social and political context where the public sector has been rolled back, market institutions will have to be encouraged to share this data. Where there is an underrepresentation of communities of measured need i.e. under-use of hospital facilities by occupational communities with known occupational diseases such as the stranded mining communities or low take up of reproductive health services by single mothers, in partaking in a core activity in any location, this should be captured by an accessibility audit and followed by remedial measures to correct or meet this unmet need. (An example of a policy domain in which such a technique was used to identify and measure exclusion in Britain is to be found in the case of Massey Ferguson who were held to be responsible for indirect discrimination against ethnic minorities in their employment policy: the percentage of ethnic minority residents in the locality of Massey Ferguson's tractor premises in Coventry was compared with the percentage of ethnic minority employees in the workforce. The difference between these two statistics was held to be a measure of indirect discrimination or social exclusion.)

The discussion of transport and social exclusion in Britain has been driven by three main forces: 1) the advent of information communication technology which creates a new context of measurement, 2) the project of 'joined up government' which is made possible by the new information technology and 3) the pressure to adopt demand management measures i.e.. road user charges, to reduce congestion and improve the environment which has brought in its wake a public discourse about transport organisation and equity. Transport organisation and social equity is an infant discussion in which the relationship of measurement to policy intervention, policy options and policy solutions are not yet well formed: later in the presentation, and in the context of new demand management strategies of road user charging, a displacement parking audit protocol is set out which could be used to address and remedy inequities likely to be experienced by ethnic communities immediately outside charging cordons. From our short quick start, we can see already that the terrain of transport and social exclusion is, at present, a muddled and muddy one. The objective of the rest of this presentation is to push further on a vision of change that the ‘transport and social inclusion’ discourse ought to signal.

2. Transport and society: a close observation of outcomes

The art of measurement is not a new science. What receives the benefit of this art, and the resources required to make it effective, is a matter of frameworks, interests and politics. The emergence of boldly declared 'evidence based policy' has been contemporaneous with, and dependent upon, the exponential rise of networked information management. The collection of information for system management purposes enables the ready profiling of performance at every level of the organisational and institutional hierarchy: performance tables of schools and hospitals and transport operators are increasingly available in the public domain. Performance tables and Geographical Information Systems interact to reveal systematic differences in the fortunes of and constraints faced by different localities. The new information communication technologies reduce the costs to government and to organisations of closely observing outcomes and routinely mapping these outcomes as a policy tool: moreover, they reduce the cost of sharing such information with the public and other stakeholders.

Communities can readily obtain the mapping of their measured circumstances from government web sites and compare these circumstances with those of other like placed and, indeed, differently placed communities: consulting the evidence as framed by the Index of Multiple Deprivation requires no broker - all that is necessary for unmediated access is connectivity. The new information communication technologies reduce the transaction costs of participating in this art of measurement not only for governments but also for communities: with new information communication technologies the disadvantaged can begin to participate in the measurement of their own disadvantage as a pathway to remedying inequities. Collecting evidence through transport protest web sites and relaying that evidence globally as part of the political process is a new feature of transport discourse in the information age (Grieco, Holmes and Hosking, 2002)

In this information-networked, evidence based policy world identifying the accessibility and mobility constraints experienced by a ‘sink’ community is a matter of policy and political will. Typically, these constraints have not been adequately measured and appropriate transport solutions remain largely undeveloped. Accessibility and mobility audits have been little in evidence and where they do take place are often too general in their character to field adequate challenge to existing policy practices. Even where accessibility measurement has been boldly embraced, such as in the London Transport accessibility planning tool, CAPITAL (Church et al. 2000) it appears that it is timetable information which is used to calculate public transport journey times - the measurement of service delays, cancellations and failures do not appear to enter the equation. Actual system performance appears to be unaudited. Within the discussion of the CAPITAL tool provided by Church et al.(2000), in itself an excellent

and highly useful essay on the need to better measure the relationship between transport and social exclusion, there is no investigation of how to capture the time-space tensions between geographically spread essential activities in relation to social exclusion within accessibility measurement. Put differently, compound accessibility measurement has not yet surfaced in the British policy discussion.

Accessibility audits have, most tellingly, become a standard tool in poverty reduction strategies within the developing world: high rates of maternal mortality are increasingly set against accessibility data in the search for policy solutions in quite literally life and death situations. Focusing on the local availability of a set of essential front line services increasingly becomes part of the poverty reduction strategy toolkit in the developing world - sponsored by the international development agencies with their ready access to information communication technology in a world where geographical information systems and global positioning systems can be harnessed in the mapping of disadvantage and distress. The World Bank, viewing itself, with some good reason, as a Knowledge Bank, has been proactive in developing protocols for poverty mapping and charting these against access to and delivery of services. Within the development discourse, the World Bank has stressed the importance of the decentralisation of services. Considerations of local accessibility have been particularly prominent in discussions of gender: village infrastructure programmes and rural transport programmes have surveyed gender roles, time budgets, travel patterns and unmet needs.

> *"Poverty maps can be combined with other available geographically disaggregated data – e.g. geographic databases of transport infrastructure, public service centers, access to input and output markets, information on natural resources quality and natural disasters – to yield a rich array of information relevant for poverty analysis and policy making."* World Bank, 2001.

The rich array of information necessary for the analysis of social exclusion within a transport context is the issue at the heart of the matter: gender roles and time budget patterns will vary with culture, with region, with locality but ensuring that in each case and in each category the appropriate array of information is collected to meet the declared policy goals of attacking poverty (in the case of the World Bank) or providing a benchmark level of equity i.e social inclusion (in the case of the United Kingdom government) is essential. It is unlikely that any one tool of measurement can accomplish the task: and at this point, it is necessary that there be some trully collective and interdisciplinary thinking on the composition of the toolkit.

Accessibility audits and accessibility planning have also been adopted and advocated by the International Labour Office in its agenda for development (Edmonds, 1998;

Grieco, 2002- http://www.geocities.com/transport_and_society/ruralinclusion.html). Britain's adoption of accessibility audits follows upon these histories already shaped in the developing world and good guidance, most particularly on gender, can be gained from these sources. Women's child care responsibilities mean that many women are frequently accompanied by children on their journeys: this means that they are particularly sensitive to vehicle design and fare schedules. High steps onto buses mean that they cannot easily manoeuvre child push-chairs and may have to make the journey on foot: being accompanied by children means that a woman's real fare on the bus necessarily involves the additional fares for her children. Accessibility auditing bus design is as necessary as accessibility auditing bus times: similarly, women's gender roles need to be accommodated by a 'social fares' policy if travel equity is to be achieved.

It is beyond the scope of this presentation to set up a full protocol for the measurement of social exclusion and inclusion in respect of transport organisation and its modern counterpart information technology organisation, we can, however, outline a wealth of measureable relationships that can be considered and worked further upon:

Place based measures: In developing protocols for place based measures, it is important that the infrastructure and services within any locality are not simply inventoried and access assumed. The fit between infrastructure and public transport services is a first base: low income communities (Moor Park) five minutes by car from a major shopping centre have no public transport option for accessing that shopping centre (Silverlink). Place based measures should identify both resources and constraints. Place based measures could measure the distance between optimal routings to meet social efficiency goals and existing routings. Although, there is a suggestion within the literature that there is a tension between operating place based measures and social category bases measures in the 'transport and social exclusion' exercise (Church et al., 2000), there is no inherent difficulty in collecting social category data within place based measurement: the percentage of child bearing women within an area is relevant to the level of provision of ante-natal facilities, the percentage of older persons within an area is relevant the level of demand responsive transport provision. Accessibility is necessarily about 'social category in place'.

There is a need to determine both the benchmark levels of accessibility and the basket of activities which are to constitute social inclusion. (Indeed, this is what the Index of Multiple Deprivation currently does but very poorly and without respect to the differential mobility resources of different localities.) Without such a determination, the policy exercise is problematic: lack of comparability between localities as a consequence of varying methodologies will greatly hamper the policy exercise.

There are at least two policy goals in undertaking place based measures of accessibility and of mobility resources, the first is to gain a national overview for policy purposes and to enable the necessary bargaining for appropriate mobility and accessibility resources within a national budget. A lack of overview has the consequence of the development of piece meal solutions, solutions which may have sustainability problems without revenue support. The integration of accessibility measures into the Index of Multiple Deprivation is critical: the failure to call for such an inclusion by the Social Exclusion Unit represents a major failure given the findings of their report (2003). The explanation as given to the Select Committee is that this would be too difficult 'given the geography': this ignores the fact that 'geography' has not prevented the use of the existing measure.

The second goal of place based measures of accessibility and mobility and connectivity is to ensure that measurement is a forerunner to identified improvements. Without a nationally valid measurement of area accessibility and mobility and connectivity resources, the changing contours of social exclusion will not be captured as in some areas local audits are used to initiate changes and in others they are not.

Within the development of place based measures of accessibility, it is important that compound accessibilities be addressed: a set of single purpose accessibility measurements do not necessarily capture the scheduling burden imposed by the spread of these facilities as compared with a clustering. In order to address compound accessibilities, an understanding of the grouping or 'families' of activities that require proximity to be conducted efficiently is necessary. Research on the scheduling of activities by the inhabitants of an area can be used to identify the barriers imposed by current land use patterns and transport organisation: attention has to be explicitly paid to suppressed 'necessary' journeys if social exclusion is to be properly addressed. In the present, any such research should properly contain an investigation of the availability of communication technology and its use in performing activities in the locality.

Social category based measures: Some social categories experiencing transport based social exclusion are clustered and some social categories experiencing transport based social exclusion are scattered. Standard measures of accessibility, such as our East Surrey Hospital will not capture the mobility constraints of the infirm or the aged: and the infirm and aged are likely to be scattered rather than clustered in terms of location. However, the unmet needs of this group present, within any location, need to be measured and the appropriate level of flexible transport provision determined and financed.

> *More than half of older people travelling to hospitals and dentists in London experience some difficulties in getting there, as do a third of those attending GPs or health centres.* Making the connections: Final report on

Transport and Social Exclusion Unit, Office of the Deputy Prime Minister, United Kingdom. February, 2003:15

Given the practical option of intelligent demand responsive transport, and the contribution this can make to the reduction of accessibility and mobility deficits in respect of social exclusion, the over concentration on bus stops, fixed route and mainstream public transport present in the current literature is misplaced. Measuring whether flexible transport provisions are in place and are adequate to the social needs of the vulnerable social categories identified within an area is an important part of an accessibility audit: measuring transport provision deficits can not take place solely in terms of fixed routes.

Even where good quality fixed routes exist, and where persons are able-bodied, other social vulnerabilities exist in respect of transport. Asian women in Bristol reported (Raje, 2003) fear of racial harassment on public transport even in the day time: as with illness, racism is no respecter of the time of day. This finding fits with other evidence such as the Bristol crime audit. As a consequence of fear of crime on public transport, Asian women reported the 'habit' (Lyons 2003) of travelling primarily as car passengers. Road user charging, if this finding is replicated elsewhere, would have the consequence of disproportionately affecting the travel behaviour of Asian women. Intelligent demand responsive transport could overcome such negative effects: similarly, auditing public transport for personal security and taking remedial action would have a similar effect.

These two examples provide us with an insight into why it is important to comprehensively identify barriers to travel by social category and to audit for such barriers in any particular location. Treating accessibility as if it can be measured by an as the crow flies or as the ideal bus runs methodology will generate wrong assessments of needs and result in failed transport and accessibility provisions.

Person based measures: The new information communication technology opens up new prospects within our thinking on accessibility: the core of the idea is personal public transport accounts. Historically, our limited information management competences meant that industrial society had to think of public provision of mobility primarily in terms of mass transport solutions. The market held the responsibility for private flexible solutions such as the motor car. We are now at a crossover point: private flexible solutions choke our main arteries whilst mass public transport deserts our peripheries: inside this cross-over, new possibilities exist. Fixed route public transport can better service our arteries if integrated with flexible public transport linking the home with the artery interchange: intelligent demand responsive transport can provide such a linkage which benefits both the excluded and the included.

Personal public transport accounts can be used to provide a transport system with the individual public transport user's profile of journey needs forming part of the operating data base. Customised accounts and customised journeys would provide a path out of present transport and social exclusion dynamics as well as playing an important part in current policies of demand management. Some indication that a variant of this approach is under adoption is provided in the recent Social Exclusion Report (2003):

> *Health care: Changes will be made to specialist travel to healthcare services so that it is organised around the patient. The Department of Health will widen the criteria for eligibility to Patient Transport Services and increase the advice and information given on accessing health care.* Final report on Transport and Social Exclusion Unit, Office of the Deputy Prime Minister, United Kingdom. February, 2003:7

Organising public transport around the needs of the individual client so as to gain major system benefits around social efficiency and demand management does not seem such a very big step in the information age: social and transport policy have yet to catch up with the customisation of options that new information communication technology affords.

In concluding this section, we want to draw attention to the need for a more diligent approach to travel behaviour research and advocate the explicit focus and collection of data within a Suppressed Journey Analysis framework so that barriers to travel, and the consequences of these barriers are accurately captured. We want to argue for the development of an approach to accessibility measurement which moves beyond the ready made measurement package of single purpose accessibility mapping predicated on the assumption that time tabled journey times are the actual journey times - actual performance should be at least the first base of such analysis and compound accessibilities require consideration if policy is to work for the socially excluded. Finally, we want to stress the importance of the stranded mobility analysis: deprivation is not simply an absolute experience, it is also relative experience. Not to have the mobility visibly enjoyed by others is an injury in itself.

3. Anecdotes, analysis and accessibility planning: road user charging, sustainable systematic measurement and parking displacement audits.

Research on social exclusion and accessibilities using GIS systems has begun in Northern Ireland:

> *Work in Northern Ireland using GIS has been developed to increase understanding of the shape of public transport services offered and their relation-*

ship to different communities. Julian Hine, Translink Professor of Transport, University of Ulster: personal communication 2003

This policy research is still in process and not yet in the public domain. The diligent transport and social exclusion researcher in the United Kingdom will find no systematic national accessibility measurement in place with which to begin accessibility planning: nor will s/he find any systematic national data set on the quality of public transport provision or mobility resources by area. The Social Exclusion Report (2003) itself uses the term 'anecdotes' to describe some of its evidence, anecdotes which are used to signal problems which have not hitherto been systematically investigated by the research establishment and policy agencies. Despite the need to resort to anecdotes in order to provide evidence on certain topics, this report does collect together a substantial body of research which undoubtedly makes the case that transport and social exclusion are indeed related in modern Britain.

In order to plug existing data gaps, our suggestion in the previous two sections is that information generated by the range of policy record keeping systems be harnessed in identifying transport and accessibility deficits. 'Joined up government' should permit the integration of data from a number of sources into a compound accessibility audit.

In this context, we want to provide an example of an audit which could be undertaken in relation to ethnicity, social exclusion, social equity and road user charging (Raje, 2003): an issue on which the Social Exclusion report (2003) is silent. This is the displacement parking audit.

Road user charging cordons have displacement effects: many drivers of vehicles which previously would have journeyed to the centre and parked will now stop their journey short of the charging cordon and park there for the duration using public transport to make the remainder of the journey.

In the case of Bristol, the proposed charging cordon is likely to result in such displacement parking in ethnic areas which already register high on measured social exclusion. Displacement parking in disadvantaged areas is likely to increase the difficulties experienced by residents in these areas both in terms of access to parking and access to public transport through overcrowding.

Parking enforcement technologies can be used to measure the displacement effect: these provide an easy and rapid form of data collection and can be organised so as to reveal area of origin of non-local vehicles. In order to offset these indirect exclusionary effects of road user charging, and in proportion to the level of displacement parking and crowding out of local travellers by distance commuters on public transport services, resources can be drawn from the revenue earned through road user charging to provide intelligent demand responsive

transport services to the ethnic community and other locals crowded off public transport facilities: this would have a strong social equity effect and gives an insight into innovatory reorganisation of transport to meet the social exclusion agenda without any substantial policy shift or incurred expense.

The parking displacement audit keeps us within the domain of the measureable, identifies the do-able and moves us beyond the anecdote. It uses geography as a pathway to standard setting rather than viewing it as an obstacle.

4. Distributed technology, community feed back and open management systems

The crux of new information communication technologies is that they are distributed and not simply networked within large organisations. Barriers in obtaining access to data across systems are now more a matter of preferred and deliberately erected fire walls than technical obstacles to data sharing. Transport is a domain in which we see substantial data sharing: the use of global positioning systems, geographical information systems and real time information and monitoring systems have all become part of the transport landscape with relatively little theorising about their consequences for the relationship between transport and society.

From the transport providers' end, real time passenger information systems are increasingly been made available to the public. Real time passenger information systems automatically imply real time performance monitoring systems. The focus on integrated passenger information systems (Lyons 2003) as a mechanism for improving demand management objectives will increasingly result in the visibility of transport system failures both within localities and indeed globally.

In line with the visibility of performance on the high quality mainstream transport routes, it is important that the same technologies are used to produce visibility upon the lower quality more peripheralised routes. Where such technology has not been installed, community feedback on performance should be systematically collected, relayed to the transport provider and organised for display within the same integrated information system. Within a distributed technology environment, community feed back can be used to alert transport providers of failures within their systems and to enable the fine tuning of service provision.

The failure of a fixed route vehicle can be the occasion to summon an intelligent demand responsive form of transport from an intelligent bus stop or a mobile telephone (on provision of

an identification code). In this way, community feedback transforms into the open management of a transport service which would have high social equity characteristics.

The widespread availability of mobile telephones within low income communities provides a basis for substantial reorganisation of the relationship between fixed route and intelligent demand responsive transport services: the challenge of the transport and social exclusion agenda is to harness this new found communicative competence. A public transport focus on the customised journey needs of the individual client is now possible: the single mother standing at the bus stop with a sick child trying to reach the doctor within surgery hours waiting for a scheduled bus which does not arrive can be a thing of the past. From the intelligent bus stop or from her cell phone, she should be able to summon a back up vehicle and report the transport failure.

5. Teaming for a new transport vision: multidisciplinarity in transport planning

The purpose of this presentation has been to sound an alert on the importance of developing national data sets on accessibility in relation to social exclusion. Such data sets will necessarily combine poverty mapping with the mapping of key activity locations and transport service availability. Any mapping of transport service availability has to pay due attention to known barriers such as vehicle design, personal security and fare policy.

Connectivity should also be audited and maximising the use of information communication technologies to overcome physical distribution constraints and to customise travel options for the vulnerable should be an active policy goal.

In identifying the benchmarks (required level of provision), baskets (set of core activities essential for inclusion) and bundles (required degree of proximity for related activity locations) necessary to the appreciation of compound accessibility, it is important that multidisciplinary skills be recruited. Amongst these multidisciplinary skills, the skill of the community should also be included. Integrating the experience of the end user is critical to the task. In order to better audit the relationship between transport, accessibility and social exclusion, new institutional capacities are required:

> *One reason why mainstream public transport has not taken sufficient account of social exclusion and accessibility issues has been insufficient technical capacity and staffing resources locally. Some local authorities do not have the time or expertise to map where people live, where services are and whether transport routes connect people to places. Instead, their expertise*

> *lies in understanding engineering problems such as understanding traffic flows on roads.*
>
> *Local authorities could also do more to consult deprived communities and assess their need. Although the LTP system now places much greater emphasis on local consultation, the views of people living in deprived areas are not always heard. Community transport organisations often have expertise in community consultation, but their skills can be overlooked by local authorities.* Making the connections: Final report on Transport and Social Exclusion Unit, Office of the Deputy Prime Minister, United Kingdom. February, 2003:42

Even the least endowed local authority could begin rolling the ball towards a more comprehensive mapping exercise by simply systematically postcoding complaints about transport services and transport operators and investigating those postcode locations from which a significant volume of complaints originate. Community feedback in a more transparently open management structure of services is a useful counter-point to the existing declared governmental mapping incapacity.

Auditing accessibility only makes sense if it acts as a herald for remedying deficits so measured. Accessibility auditing at the local level is necessary for fine tuning service provision but there is no good reason why such audits can not be conducted in such a way as to make them part of a coherent national data set which compares accessibility and mobility found in one area with that found in another. In the absence of a national overview of accessibility restrictions and transport deprivation, and in a context of limited local authority mapping capabilities, it is not clear that either the political resources or political will is present to tackle Britain's now recorded and established problem of transport and social exclusion.

Information communication technology now provides, and can provide even greater, transparency on transport failure and on the inaccessibility of key services: this is the new policy ground of transport and social exclusion - a measureable ground of public service failure rather than a modelled ground of planned service delivery.

The very same information communication technologies which reveal the problem can be harnessed in resolving it: communities of older persons left off the scheduled bus routes can be provided with in home technologies through which they can call vehicles to their door, the availability of public space technology kiosks can enable the summoning of vehicles for the return journey and personal mobile communication technologies can be made available to the vulnerable to enable the summoning of transport, assistance or the rescheduling of tasks whilst out of the home. The prospect of providing new community transport solutions which link those resident in marginalised communities to key activity locations and mainstream transport routes utilising the distributed character of the new information communication technologies requires more focused policy attention for its realisation but most importantly it exists. There are, indeed, new policy options.

It is important in the discussion of transport and social exclusion that as much time and more resources are placed in the basket of developing policy solutions and implementing them as is placed in developing complex and creative patterns of measurement. GIS system measurement and Location Activity Technologies are critical in the development of equitable transport organisation but unless the direct participation of the socially excluded is built into the design of transport research and transport operations then the consequences of poor system design remain borne by the excluded and will continue to go largely unvoiced.

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