

ROAD PRICING AND THE SOCIAL DIMENSION OF SUSTAINABILITY

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Abstract

With national road pricing (RP) now being referred to by transport ministers in the UK as a matter of 'when and how' rather than 'if', there is political interest in a number of aspects of making road pricing a reality. One such aspect is how far RP schemes might have different consequences for different social groups, and whether these differences might amount to significant changes in social justice. The identification of changes would be important both in terms of determining the contribution of RP to greater social inclusion and in influencing public opinion in general about the fairness and equity of RP, and hence its overall acceptability as a policy overall. The present paper applies Jones' (2004) distinction between social equity and spatial equity considerations in examining the extent to which studies to date inform the debate as to whether RP increases or reduces social justice. Evidence is reviewed which supports the possibility of either outcome, depending on circumstances, but with the few examples of reduced equity arising from a combination of social and spatial factors which may be hard to disaggregate in practice.

1. Introducing the social dimension of sustainability into the road pricing debate

Road pricing is now very widely promoted as a means of reconciling both economic and environmental objectives for less congestion and lower emissions in the roads sector. However, there is a general risk that the social dimension of sustainability – whether couched in terms of inter or intra-generational equity - is overlooked by policy processes focussed on overcoming sharp economic-environmental trade-offs and contradictions (Green and Wegener, 1997; Feitelson, 2002).

Evidence that there is a group of citizens in the UK for whom achieving a transport policy which is both identified as 'sustainable', but is also in practice just, may imply them travelling more, rather than less, was provided by the influential Social Exclusion Unit report (SEU, 2003). The report highlighted that those on low incomes often live in the most congested areas, and as a result suffer disproportionately from the ill effects of congestion, including poorer air quality and higher levels of traffic noise. In contrast, the benefits of reducing congestion through applications of RP are typically taken to include more reliable bus journeys, improved air quality, and reductions in traffic noise and community severance. The SEU report also indicates that motoring costs account for 24 per cent of the weekly expenditure of households in the lowest quartile who have cars, compared with 15 per cent for all households in the UK.

A RP feasibility study for the UK (Department for Transport, 2004) noted that RP schemes should seek to promote social inclusion and accessibility, and concluded that RP could provide a number of benefits for different population groups suffering from social exclusion and/or limited accessibility to services. However, the study also concluded that more work is needed to understand fully the potential impacts on different types of road user. For example, evidence is required on how changes in the costs of motoring might differently influence people's choices about how, when and where to travel, and what the wider implications for any changes in travel behaviour might be, such as in terms of people's ability to access work, schools, high quality food shopping and health facilities.

Normative investigation of equity issues is important, as it cannot be assumed that issues will necessarily emerge in an ad hoc way in the context of specific consultation exercises. Consultation in respect of American toll lanes (the *I-15 Congestion Pricing Project* in San Diego, California), provides an example of this type of credibility gap. Here, statutory requirements necessitated feedback from the low income/minority segments of the affected public. However, the public

response was poor, and from this it was officially inferred that the project was not unfair to any constituent group (Supernak, 2005). Clearly, in such circumstances of limited response, 'silence does not necessarily imply consent', and the inclusiveness of important policy and planning decisions cannot be regarded as robustly established.

Jones (2004) identified two broad categories of equity in relation to RP: spatial equity, relating to the geographical location of the individual or organisation affected; and social equity, concerning impacts that relate to the personal, economic or social characteristics of an individual or organisation. These categories of equity are factors which contribute to judgements by individuals and society as a whole about whether a RP scheme is considered 'fair'. The political significance of fairness is twofold: in addition to fundamental considerations of social justice, cross-national research in Gothenburg, Kyoto, and Taichung confirms the pragmatic importance for proponents of RP that car owners' attributions of fairness towards proposals results in increased acceptance of the policy in principle (Fujii, Garling, Jakobsen and Jou, 2004).

2. Mechanisms of exclusion

In addition to the two categories of Jones' classification, it can also be theorised that different types of RP scheme could each create subtly different equity effects, depending in part, but not solely, on geographical characteristics. A summary of potential mechanisms is considered here, in respect of five kinds of RP scheme.

i) Fixed area charging applied to all or part of an urban area e.g. as implemented in London. Behavioural responses with equity consequences associated with this kind of charge could include rescheduling, and rerouting around the charge zone, changing mode (including car sharing), suppressing travel (thus possibly restricting access) or paying the fee. Other conceptual concerns include the fact that the charge may not be related to the amount of travel within the zone or number of entries into the zone, in a given period.

ii) Fixed cordon charging applied around an area¹ e.g. as rejected for Edinburgh but applied in Durham and several Scandinavian contexts. Although behavioural responses are likely to be similar in several respects to the area charge, the cordon charge usually creates 'winner' and 'loser' groups more sharply, as travel within the cordon is not priced, whilst all journeys across the cordon may be individually charged (although technology exists to offer alternative charging approaches). Hence, issues regarding those whose key locations (home, work premises etc.) lie near a charging zone boundary are particularly important in this context.

iii) Route-based charging affecting a specific section of route or routes, with opportunities to avoid the charge either by taking an alternative route (e.g. UK M6Toll), or using a different, uncharged, lane on the same road (e.g. US HOT lanes). Although the schemes may be limited to a few kilometres or tens of kilometres and have mainly local effects (as in the case of those schemes identified above), where many toll lanes or roads are created they have significance at the national level, as in the case of the dense, high quality networks of toll-motorways which parallel free-at-the-point-of-use networks in states such as France and Italy.

The key considerations of fairness in this case relate to whether the practice of reserving a higher quality of road service for those able to pay is equitable. Separate tolled routes may provide better design characteristics (*i.e.* in terms of speed and safety) than the untolled route, and possibly a lower level of congestion. In general they will provide a quicker, safer journey and a less stressful driver experience. Hence, those unable to pay may be excluded from a range of benefits and exposed to higher risks. The potential for specific HOT lanes on otherwise toll-free carriageways to create distributional impacts through their design is more limited: HOT lanes generally have similar physical characteristics as the other lanes on the road, but offer faster journey times due to lower congestion.

¹ Usually part of an urban area, although in some cases environmentally-sensitive rural areas, such as National Parks.

In the case of entirely tolled routes, there are also significant potential negative consequences if the charge encourages traffic diversion, affecting local traffic and non-travellers carrying out activities near the uncharged 'alternative' routes. Diversion (or simply the choice not to pay for higher quality travel) may result in unsuitable traffic volumes and therefore higher congestion and pollution on the other route. Notably, in states such as France and Italy, substantial differences in design standards and speed limits implemented over decades of infrastructure supply, combined with modest levels of toll, mean diversion effects are generally well managed².

iv) *Nationwide congestion charging* delivered through high-technology has been proposed as an ultimate solution for making better use of the UK road network by raising the fiscal pressure on motorists at times when the externalised costs of congestion (costs created but not met by the travellers themselves) are relatively high. Studies of congestion-related RP options have suggested that the dominant behavioural effect might be rescheduling (Commission for Integrated Transport, 2002). Rescheduling could have significant consequences for households by altering when activities take place, who is able to participate in them, and transport choices at the level of the household. The 'school run' is one obvious class of journey that is complex – perhaps involving several members of a household, time critical and often part of a trip chain, and regarded by many travellers as essentially car-dependent. There would also be some reduction in the car trip rate, and possibly the trip-rate by all modes.

A large uncertainty raised by the congestion-related approach to tolling, however, is the spatial effects. Tolls in some rural areas might be negligible, probably linked to actual reductions in the levels of existing motoring taxes. Hence car use in these areas, and possibly migration into them, may potentially be encouraged, initially bringing benefits to existing residents and businesses, but with spatial-economic pressures which could in the long-term encourage longer-range commuting, urban-rural migration and business relocation, to take advantage of the relative change in transport costs, which might increase property prices for rural residents, some of whom may be priced out of the housing market.

v) *Nationwide universal distance-rated charging* might be delivered through a number of possible technologies ranging from GPS to an annual check of the vehicle odometer. Important advantages over the current distance-related charge – Fuel Excise Duty (FED) – are that the charge would include all vehicles, whether powered by a fuel attracting FED or not, and would restrain the reinvestment of travel cost savings from the acquisition of more fuel efficient vehicles in additional car travel. The primary intention would be to raise fiscal pressure on motorists, as is the same broad aim of congestion-related pricing, perhaps by replacing VED with a distance-related charge, but in such a way as to address a wider set of objectives than congestion alone; to reduce the full range of costs road users impose on wider society (*i.e.* including climate change, pollution, severance, etc.). Indeed, an advantage of the distance-related approach over congestion charging is that it would not expose uncongested areas to falling travel costs which could encourage traffic growth and perhaps the relocation of activities in the longer-term.

Those that prefer distance-related charging to congestion charging tend to rate some of these latter 'externalised costs' not paid by road users (*e.g.* spatial impacts of transport costs, climate change emissions, air pollution) as more important than those who follow Samson *et al.* (2001) in arguing that congestion is the fundamental problem. Negative consequences for equity would depend on the level of charge, but this type of RP would be more likely to result in modal shift or trip

² A large proportion of the dual-carriageway route-km in France and Italy is part of the tolled motorway networks. These tend to duplicate single-carriageway 'A-roads' in a more comprehensive way than in the UK, where the motorway and general-purpose road infrastructure is more integrated. Permitted speeds for cars on French and Italian motorways are higher than in the UK (81 mph in dry conditions rather than 70), whilst the national limits on single carriageway roads are lower (56 mph rather than 60), which means the journey time benefits of choosing the motorway may be greater than in the UK. Toll levels are around £0.03 per mile for cars in France, and sections providing orbital bypass routes around major towns are sometimes toll-free (where the incentive to divert to avoid the toll is high and the social benefit justifications for preventing diversion also high). In the UK, there are more high-quality non-motorway roads and no speed limit differential between motorways and non-motorway dual-carriageways, and only 10 mph difference with these and unrestricted single carriageways. Combined with high levels of congestion on several parts of the motorway network, it is possible that diversion could be more of a problem. Toll levels may also be set higher, in order to influence congestion or maximise revenue. The M6Toll costs £0.13 per mile for cars, more than four times higher than the typical continental prices.

suppression as, in its purist form, rescheduling would not be an option, and hence the car trip rate, and possibly the all trip rate, would fall. As with congestion charging, car occupancy can be expected to increase, but more uniformly across the 24 hour period, as the higher price would apply to all periods of travel.

The remainder of the paper examines, through analysis of secondary sources, insights from research on existing RP schemes considering what can be confirmed regarding the existence of social distributional consequences. Given the focus on evidence from existing schemes, most of the research to date focuses on small and local schemes – particular toll roads, toll lane schemes or cordon or area schemes for particular cities – as the only genuine national schemes are the Swiss, Austrian, and German network-wide pricing arrangements for vehicles of 3.5 tonnes weight and over.

3. Considerations of social equity

In terms of the distributional impacts of RP and matters of social exclusion it may be suggested that it is people with no alternative to using the car who are the most vulnerable to the imposition of a regular road user charge payment, and amongst this group, it has been suggested that those on lower incomes are less likely to use roads where and when pricing applies to them (Sinclair, 2002; Raje, Grieco and McQuaid, 2004).

Evidence from the *London Congestion Charge* (LCC) indicates that pricing can have adverse impacts on families and social networks due to low ability to pay the charge: a survey found that, inside the zone, 43 per cent of respondents believed family and friends were now finding it more difficult to visit them, although half did find that visits had not been affected (MORI, 2004).

A more subtle effect may arise if certain travellers feel obliged to adopt a more risky form of travel to car use if the toll is not affordable. A study of the effects of the LCC on road casualties illustrates that, although overall accident figures are stable since scheme implementation, there have been increases in motorcycle casualties within the Inner London area. This could be a result of the incentive to use motorcycles, as riders do not pay the charge, and may reflect the inexperience of travellers that are new to motorcycling, in which case it could be a short-term effect, or may simply reflect the higher incidence of motorcycling and the changed road traffic conditions, in which case it could be more permanent (Noland, Quddus and Ochieng, 2006). Whilst road safety is an important consideration, however, there may not be an equity concern in those cases that behavioural responses reflect preferences resulting from rational decision-making which is not overly constrained by ability to pay.

Most RP schemes to date have principally targeted peak periods and/or urban centres, and the counter-argument is that those travelling in the peak tend to be more affluent, as are those travelling further distances into urban centres. Accordingly, those paying the charges tend to be on higher than average incomes and often male and middle-aged (Lee, 2003; Holguin-Veras *et al.*, 2005; Sullivan, 1998).

The Value Pricing programme in the USA has made a particular feature of examining how flexible pricing may mitigate adverse distributional effects, although it must be noted that usage of such schemes will tend to reflect ability to pay, as well as willingness to pay. One significant study observes that recent pricing experiments in the Los Angeles (SR91), San Diego (I-15) and Houston areas give motorists the option to travel free on regular roads, or to pay a time-varied price for congestion-free express travel on a limited part of their journeys. The authors found that, compared to a uniform price, varying road prices can significantly reduce the distributional disparities between groups of motorists. They also find great heterogeneity in motorists' preferences for speed and reliability (Small, Winston and Yan, 2002). Indeed, where there is a charged route alongside an un-priced alternative route, it cannot be assumed that *only* the relatively wealthy would choose to pay the toll, and *only* the less wealthy will choose the free option. For example, in the case of State Route 91 in California, whilst 50 per cent of the highest-income travellers reported that they never or infrequently use the toll lanes, 25 per cent of the lowest-income travellers reported that they use the toll lanes on a frequent basis (Sullivan, 1998).

US-style toll lanes and HOT lanes³ have been given policy attention for their potential application in the UK. Considering the relevance of the above evidence, an analogy with densely populated areas of the UK can be made: the American authors conclude that one possible explanation for this heterogeneity is that, in very expensive and congested areas such as Southern California, consumers face significant constraints in trading off housing expense for commuting time. In such a situation, there is an opportunity to design pricing policies with a greater chance of public acceptance by catering for varying preferences. They argue that, by reducing the adverse impact of combined tolls and time-savings on consumer surplus⁴, differential pricing enhances the political viability of RP because policy makers must apportion only a modest fraction of toll revenues to fully compensate road users. Differential pricing may thus be the key to addressing the stalemates that impede transportation policy in congested cities (Small *et al.*, 2002).

With regard to age, it has been noted that users of tolled roads come chiefly from the middle-aged group, whilst older and younger car drivers are more likely to be responsive in their behaviour to variable pricing⁵ (Appiah, 2004; Evans, Bhatt and Turnbull, 2003; Holguin-Veras *et al.*, 2005). However, it has also been suggested that older people are more car dependent than other age groups (Raje, 2003). Limited evidence also suggests that younger people may be more negative towards pricing than other age groups, due to low affordability (Kjerkreit and Odeck, 2005).

Exclusion by gender is arguably one of the more obvious potential consequences of RP. US studies do show that, other things being equal, women are more likely than men to choose the toll road. It has also been observed (although not yet explained) that women place a much higher value on reliability of journey time than men; roughly twice as high as the value they place on saving time. It is hypothesised that the reason is that women have more child-care responsibilities, which reduce their scheduling flexibility (Brownstone and Small, 2005; Sullivan, 1998). However, there is also contradictory evidence from the USA that women are more likely than men to adopt behavioural adjustments to congestion (Evans *et al.*, 2003).

UK research based on travel diaries in the Bristol area indicates that people from some Asian⁶ groups tend to be more dependent on car travel than the population of the City as a whole, and so potentially more vulnerable to the effects of pricing. It is also concluded that some elderly Asians, who described unfamiliarity with bus use at associated focus groups, may end up forfeiting journeys if they cannot afford the increased travel costs associated with a cordon charge and are unable to use the bus services. In addition, there is a connection to gender issues here in that four-fifths of the trips made by Asian men from the study were as car drivers, in contrast to Asian women who made approximately a quarter of their trips by this mode, relying on travel as a car passenger for three in every four trips instead. It is therefore argued that the dependence of some Asian women on lifts may mean their travel opportunities are particularly affected by road-user charging. Journeys facilitated by a lift may involve twice the number of car trips as do car driver or car passenger journeys, as the lift-driver may not wait at the destination, but return to the origin (or travel somewhere else) and return later to collect the person receiving the lift. Depending on how a charge is levied, this could mean that the number of times a toll is paid is higher, and these trips become less readily available because of financial constraints on family budgets. Consequent suppression of trips or enforced mode change may follow (Raje, 2003).

With regard to household type, findings in the USA suggest that the majority of toll road users come from relatively small middle-class households with above-average incomes. For example, in the case of the *Port of New York and New Jersey Time of Day Pricing Initiative*, it was concluded

³ Whilst toll lane schemes generally operate by levying a fee per car, regardless of occupancy, HOT lane schemes may require multiple occupancy of the vehicle as well as levying a fee per car, or may levy a discounted fee or give a complete exemption for multiply-occupied vehicles. Where a lane is available only for multiple-occupancy vehicles and no fee is charged, they are generally known as High-Occupancy Vehicle (HOV) lanes.

⁴ A measure of the difference between the amount a consumer values a good or service and would hence be prepared to pay for it and the lower amount he/she actually pays.

⁵ Charges which vary in time, usually according to the period of day or week, or according to the level of traffic or congestion. There may also be a variation to reflect the occupancy of the vehicle.

⁶ The study does not disaggregate findings by ethnic background and these distinctions are likely to be important. It is known that British white and British black and minority ethnic respondents as well as immigrant populations were involved in the study. The sample for the whole study included people from Indian, Pakistani, Bangladeshi, Somali, Sudanese, and African-Caribbean backgrounds.

that the fact most respondents report having high household income and car ownership will tend to generate user survey data that emphasise the limited influence of tolls in changing travel patterns, as they are likely to represent a relatively small portion of travel costs. However, it is of course possible that those on lower incomes might have used the road more regularly prior to the imposition of the toll (Holguin-Veras *et al.*, 2005). Significantly, in the case of the Houston tolled lanes, where only vehicles with two or more people are allowed, those who perceived higher travel-time savings, and travelled most frequently on the corridor, usually carpooled with an adult family member. Given that the majority of Houston tolled lane users come from smaller than average households, but with above average education and income, this suggests that carpooling is more prevalent in households of this type (Appiah, 2004). Quite why those on lower incomes are less able or prepared to pool in order to benefit from the express lanes remains unclear.

In summary, although attempts have been made in some of the studies above to disaggregate variables, the effect of income remains a very important factor, whether operating directly, or through different social and economic circumstances such as the number of working adults in a household. Hence, it remains unclear how far explanatory power is increased by reference to variables such as age and gender. Whilst wealth is important, though, there may be close links between the location of a charge, and where those on particular income levels live. Spatial equity is examined in the following section.

4. Considerations of spatial equity

It has often been recognised (e.g., Hensher and Puckett, 2005) that individuals and organisations in particular locations relating to an RP scheme are likely to be affected differently to those in other areas, and that the degree of inequity may vary significantly with scheme type. A study of proposed RP schemes and social exclusion in Leeds emphasises that one of the main reasons for identifying the at-risk groups before implementing a road user charging scheme is that it might be possible to modify the scheme design, so as to reduce the likelihood of those people becoming socially excluded. If it is possible, by moving the boundary, by redefining the basis of the charge, by allowing different methods of paying the charge, by providing exemptions for certain groups, or by using the revenues to improve the provision of alternative modes of travel in order to reduce the impact on at-risk groups, then this should be given serious consideration right from the outset (Bonsall and Kelly, 2005).

Boundary effects are perhaps most likely to arise in respect of schemes involving point-toll cordons, in which case circulating within a toll cordon is uncharged, whilst those passing across the cordon pay on each occasion. Such a scheme type is particularly well represented by the case of Norway, where urban toll cordons have become relatively common over the past two decades. For many years, the specific aim of RP in Norway was to impose tolls for a specific period of time, in order to raise revenue for earmarked new road infrastructure, and not for reasons of reducing congestion or on environmental grounds. However, in recent years the dynamics of Norwegian policy has led to greater consideration of the benefits of urban cordons in reducing traffic congestion, and with this has come an awareness of socio-economic impacts and the importance of reconciling efficiency and equity in scheme design (Ramjerdi, 2003). Norway also provides one of the few examples where the wider social needs of families have been considered. Thus the 'one hour' rule in Trondheim means that only one passage per hour across the cordon is charged. This is partly due to claims that parents bringing children to kindergarten before travelling to work would be unduly penalised if charged for several crossings (Langmyhr, 1997).

Boundaries to any scheme (spatial, temporal, or relating to concessions and exemptions) may be inevitable, but are a natural target for controversy, and evidently can govern whether the argument for pricing is won or lost. A good example here is provided by the *Edinburgh congestion charge*, rejected by referendum. The original proposals in fact presented a problem for equity in the sense that poor neighbourhoods just outside the Edinburgh boundary would have had to pay the charge, whereas more affluent neighbourhoods within the City boundary would have been exempt (Raje *et al.*, 2004). However, a key exemption added at a late stage by Edinburgh Council emphasised inequity, in determining that residents of the administrative area of the City who lived outside the proposed outer cordon would not be liable for the charge. This gave rise to beliefs amongst residents of neighbouring local authorities, who would have to pay the charge, that the approach

was unjust. Although only Edinburgh residents voted in the referendum, it was widely believed that opposition from surrounding areas affected publicity about the scheme, and influenced opinion within the city (Saunders, 2005).

Boundary issues can also arise from environmental problems. For example, a survey of the LCC found that respondents from Hoxton were particularly negative about accessibility, reporting an increase in cars parked in their area. This was related to a rise in the number of drivers from outside the community parking their vehicles and completing journeys to the zone on foot or by public transport, rather than paying the charge or travelling by public transport from further afield (MORI, 2004).

Furthermore, where travel and congestion are focussed in space, the overall cost of travel in terms of time and money are also influential in the relationship between residential location, RP, and wider social and environmental issues, such as air quality. Indeed, the latter problem serves as an exemplar that RP schemes may be expected to reduce at least some aspects of inequity: a study in Leeds found that there is social inequity in the distribution of nitrogen dioxide (NO₂) in the absence of RP, with deprived areas experiencing significantly higher atmospheric concentrations than communities of average or above average affluence. It was found from simulation studies that proposed RP schemes would reduce inequity in exposure to NO₂, with the extent of the reduction in inequity varying according to the charge option. It was also found that road user charging may be more effective than low emission zones in addressing environmental inequity (Mitchell, 2005).

At the other extreme of density, concern has been expressed for the implications of RP for rural residents with limited public transport services, and no clear alternative to car use (Glaister and Graham, 2004). Either a network-wide national pricing scheme, or a more local one covering a nearby urban area on which rural residents are reliant for obtaining goods and services by car, could theoretically create disproportionate disadvantage for this group, which has for some time been identified as paying modestly more for car use, even in the absence of pricing (Root, Boardman and Fielding, 1996).

5. Conclusion

A consideration of evidence on existing RP schemes has confirmed some of the potential mechanisms by which both reduced social and spatial inequity could result from RP schemes, and also three cases in which equity seems likely to have been reduced for certain individuals, and against specific measures such as car trip rate, safety and decisions to use a premium facility, but taking into account the possibility that equity has been increased from the RP schemes overall, *i.e.*, perhaps because there are benefits for those without access to cars.

Moreover, in other cases, where a *prima facie* case for exclusion may initially have been suspected, the studies reviewed revealed examples in which equity does seem to have been enhanced even for poorer car users as demonstrated by their willingness to pay to use facilities, potentially allowing greater participation in society; theoretical examples in which equity would be likely to be increased, for example through the modelled dispersal of the 'environmental load' of air pollution in a fairer distribution. As the beneficiaries in this case will mainly be residents, rather than travellers, the importance that equity is appraised taking into account outcomes for the full range of affected groups and that the process does not become disproportionately focused on different groups of car users is reinforced.

The evidence also confirms the importance of public perceptions of equity in the case of Edinburgh in undermining a proposed scheme, but also the effectiveness of careful design in Trondheim in overcoming identified problems of equity in practice.

For equity amongst car users, the studies reinforce the importance of income as an important explanatory variable, although sometimes associated with co-variables such as classification of employment. Direct mechanisms by which income underlies potential inequity through limiting travellers' ability to afford tolls are observed, as are the roles of more indirect spatially-related factors, such as the property market, which may oblige individuals to live in relatively inaccessible, travel-dependent locations due to them having constrained choice of location of affordable housing. Indeed, the interactions between Jones' spatial and social categories are confirmed in almost every example, given the tendency for 'at risk' groups to be focussed in particular spatial locations. One

implication of this is that it will be difficult to disaggregate the relative importance of each in practice. Another is that the spatial nature of RP schemes, as reviewed in Section 2 will be important, in association with the nature of charging, e.g., whether per trip or per unit distance, and the affordability of the rates.

These findings emphasise that a sophisticated debate needs to continue to be held around the policy of RP, in which it is accepted that the tool is not inherently likely to increase or reduce equity, but much will depend on the specific circumstances of

- the location of social groups experiencing, or at risk of, exclusion,
- the broad characteristics, scale, and rates of charge of a scheme, and
- the detailed specification of the implemented design.

Effective consultation will remain important in avoiding the exclusion effects of RP, although it must be acknowledged that there are limits to effective consultation, due to constraints on participation by some of the groups most likely to be excluded, which creates an imperative for scheme proponents to consider a 'precautionary principle' in appraising schemes, not least to ensure that perceptions of inequity do not become a negative influence on public opinion or the pragmatic justification of those opposed to RP principally on other grounds.

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