

Chapter 13

CHALLENGE OF DELIVERING ROAD USER CHARGING IN THE UK

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INTRODUCTION

41 years after the publication of the Smeed Report[1] and two years after the successful introduction of central London's congestion charge, Alistair Darling as Transport Secretary in Spring 2005 formally adopted road user charging as the only long term solution to traffic congestion on Britain's road system. Apart from the special case of Singapore, this was the first time a national government had made such a policy commitment. It followed the publication in July 2004 of the DfT's *Feasibility Study of Road Pricing in the UK*[2] which set out to show how a distance-based form of charging could work and what benefits it could deliver, as well as the successful introduction of the London Congestion Charging scheme in early 2003.

Road user charging has moved in the late 1990s from debate between academics, transport professionals and some policy makers to becoming a real possibility for practical implementation; with experience on the ground now in central London and in other applications in Europe and elsewhere, the broad range of challenges faced by local and central government in taking it forward - technical, operational, fiscal, political, public acceptability - is becoming very evident.

This Chapter reviews recent developments in the thinking and application of road user charging, looks at actual experience, and considers the wide range of issues and challenges now confronting those seeking to take road user charging forward in the UK.

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WHAT IS RUC AND WHAT IS IT FOR?

The rationale for road user charging

Road user charging is not a new concept. Travellers paid to use the turnpike roads, first created just 300 years ago, with over 1,000 turnpike trusts administering 23,000 miles of road by the early nineteenth century. Today's road user charge is the fuel duty and the vehicle license. Both are about raising revenue and nothing to do with economic pricing or congestion.

The essential economic principle first articulated in the Smeed report is that of making a charge to reflect the cost which the road user imposes on other road users (the congestion cost) and on the rest of society (accidents, environmental impacts such as noise, pollution etc). However, society has never shown much grasp of – nor have many policy-makers shown much interest in – policies which use welfare-maximising pricing principles. Nor has society seemed to accept pricing as a means of managing demand rather than simply raising revenue to pay for something, and I will refer later to research demonstrating this for London and more generally. Yet the public accepts the wide range of pricing for air travel resulting from aggressive yield management techniques used by low cost airlines - and increasingly by train operating companies? Is this simply a matter of presentation – focussing on discounts rather than 'pricing off' demand and exploiting elasticities?

Congestion management or revenue raising?

The questions 'What is RUC and what is it for' are not trivial. In the present UK policy context, RUC is about reducing congestion through pricing. Its application should therefore only be in areas and on corridors affected by congestion. A wider interpretation of RUC has the charge capturing and reflecting environmental impacts as well as congestion (on the 'polluter pays' principle); some would argue that the fuel duty already proxies that.

But RUC raises revenue, and net of the costs of collection the sums are potentially large. Currently the public is confused as to whether RUC schemes such as the London Congestion Charge are about managing down congestion or about raising more revenue for the Mayor to spend on transport; raising the charge to £8 in a little over 2 years after its introduction, after a promise to hold it at £5 for five years, understandably fuels the confusion. Note that the Oslo toll ring scheme[3] introduced in 1990 was specifically to raise funds for transport investment; while in Stockholm, the recent scheme (1995) was designed like London to reduce congestion in the centre; however, a new government has decided to focus on raising revenue with it[4].

The principle of hypothecation of RUC revenues to local transport purposes is a rarely-granted concession by HM Treasury, but without which neither the London nor the emerging schemes in other conurbations would have any chance of attracting public or political support.

The government's long term policy is towards a *national* system of road user charging – that is a single inter-operable system which could work technically and operationally for any user in any part of the country. Whether a road user charge would actually be implemented and levied throughout the country's road network – a *nationwide* system – is a completely different issue. If the objective is simply congestion reduction, a nationwide application is not necessary.

However, government also needs to consider whether a long term replacement for fuel tax will be required: as vehicles become more energy efficient (in response to carbon-reduction initiatives), and as alternatives to hydrocarbon or biofuels emerge, the fuel tax base will reduce. There may be a requirement for a form of non-fuel-based road user charging which is capable of raising revenue from all road users, irrespective of the type of fuel as well as the presence or absence of congestion. And as one of a basket of measures for carbon-emissions reduction, there could be a case for a form of road user charging which offers a much more steeply graded incentive for using lower-carbon vehicles than does a straight fuel tax.

Forms of road user charging

With the exception of the Oregon experiment, about which a Chapter follows this one, and the German lorry road user charging scheme, all current road user charging schemes (including the widespread use of tolling on motorways and other main roads) are in the form of area or cordon charges, not distance-based charging.

An area or cordon charge has been shown to be effective in dealing with area-wide central area congestion such as London and Stockholm. However, managing congestion on a wider city-region basis requires either a network of fixed cells with cordon charges, or a distance-based charge. The comparative arguments for each are influenced by technical, operational and financial factors, but there seems to be a general recognition that distance-based charging would give a better result – certainly the promoters of the emerging RUC scheme for West Midlands would prefer to use distance-based charging. And TfL have made it clear that in the T2025 transport strategy for London a distance-based charge is the best way to extend road user charging for congestion management purposes across Greater London.

The German lorry RUC scheme was introduced in 2005, based on GPS technology, on 12,000 km of federal government autobahn, for revenue raising purposes and specifically to create a level playing field between vehicles registered and taxed in different EU member states. This was also the object of the ill-fated UK scheme, though using tachograph-based data collection; this was designed by Customs and Excise and HM Treasury and abandoned in 2005 when responsibility passed to DfT, with costs going sky-high and poor project management; it would in any case have sat uncomfortably against the more generic road user charging schemes now emerging.

For the purpose of the rest of this Chapter, I am going to take the following as the type and objectives of RUC we are considering, and the challenges of introducing it:

- Short term: area and cordon based charging, with as much automation of charging and collection as possible, flexible by time of day/day of week, by location of charge point and specific to vehicle characteristics/type;
- Longer term: distance based charging, flexible by time of day/day of week, by location and by vehicle characteristics/type;
- Based on common protocols and standards across the UK (ie a *national* system), but capable of being planned and implemented locally or regionally; and ultimately on a *nationwide* basis

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- Capable of flexing prices to closely follow congestion management objectives;
- With a 'low' cost of collection to as to offer substantial revenues for agreed purposes
- Recognising that a) substantial revenue raising *per se*; and b) specifically encouraging the use of low-carbon emission transport and travel – may be parallel objectives alongside congestion management

RECENT EXPERIENCE AND THE CURRENT POLICY CONTEXT IN THE UK

The London Experience

The London Congestion Charge first introduced in February 2003 and extended to West London in 2006 has been widely reported and evaluated and I do not need to cover it in detail here. The key features of it are that a substantial reduction of traffic congestion (30% initially, now reduced to c.15%) has been achieved in the charging zone, without deleterious effects on the rest of the road network. Parts of central London have been 'reclaimed' for pedestrians, and the public realm has certainly benefited. The technology and system - ANPR checking against a database of paid-for vehicles - was the best around at the time, but this and the significant enforcement challenges were one factor causing a much higher percentage of initial and operating costs to revenue (up to 50%) than is typical in other schemes such as Stockholm.

This slide shows the western extension which came in in February of this year; note the free corridor up the middle. The economics are much less clear cut, and I believe the decision to make the discount for residents in west London apply to central London as well was a mistake. While it has gone in successfully and delivered reductions in congestion, I think the less clear-cut case in west London illustrates the limitations of an area-based scheme.

Meanwhile TfL are in the lead for the UK in trialling tag and beacon and GPS technologies, and are likely to migrate to Tag and Beacon when the congestion charging contract for Greater London is renewed; plans for an area charge are also being considered for other places outside central London, such as Greenwich where there are severe conflicts of traffic and pedestrian and visitor movement around the maritime Greenwich World Heritage Site.

Longer term the biggest challenge for London is the growing congestion on the suburban road network and around the main town centres outside central London - Richmond, Croydon, Ilford, etc. This is compounded by the difficulty of public transport offering as attractive and alternative as it does for central London, because of the much more dispersed journey patterns. Significantly, and rightly in my view, the Mayor has embraced a transport strategy for the next 20 years which has a distance-based road user charging system for the whole of Greater London at its heart.

Government policy

The 2004 *Feasibility Study* envisaged and described the feasibility of a national road pricing scheme. However, it fairly quickly emerged that autumn that government would proceed initially by encouraging local transport authorities to adopt local RUC schemes, both to test technical viability and public acceptability, and to address traffic congestion in their urban

centres. At around the same time, the Transport Innovation Fund (TIF) was launched: the principle was that any 'new money' to fund major local transport projects would be channelled through TIF, and that any proposals for TIF-funded projects would have to be in a comprehensive transport plan context in which road user charging (in some form) was a necessary feature.

I and many others took a cynical view at the time, believing the government simply wanted local politicians to take the flak of any road pricing proposals. Given subsequent developments - particularly the rising public concern about road pricing as general proposition - this policy now seems right: it is relatively easier to make the case for applying RUC in a specific city or city-region where the congestion problems will be more evident, and where an RUC scheme can be set in an integrated transport context, in which plans for public transport improvement and other measures (such as parking control and traffic management) are part of the strategy. Which is the framework now required for a successful application for TIF funding.

Emerging city and city region proposals

Nevertheless no city authorities or city-regions are finding it easy or straightforward. Greater Manchester are the only city region to have submitted a formal TIF bid so far (embodying 'smart charging' proposals - even the language has to be used with care!). This is a comprehensive staged approach, charging road users at what eventually will be two successive cordon points on radial corridors into central Manchester, in peak periods only; associated with this is a substantial programme of public transport improvements and investment, including further Metrolink extensions and major improvements to bus services, ticketing, passenger information, all to be better integrated than they are now.

The cumbersome structure of governance still existing in the metropolitan areas is reflected in the requirement for the PTA, PTE and the individual district councils in Greater Manchester to be the promoters of this bid; it was actually done in the name of the Association of Greater Manchester Authorities (AGMA), with two district councils not supporting the bid.

The West Midlands, which had been making the running a year ago with the publication of its consultation document *Gridlock or Growth*[5] embodying specific proposals for area-based charging, recently submitted a strategy document[6] to DfT and DCLG with no provision for congestion charging; schemes put forward for consideration have been rejected and work continues to develop an acceptable scheme and a full business case.

Both Cambridgeshire and Shropshire published plans for charging in recent weeks, and set off storms of protest. The Cambridgeshire proposals are set within a comprehensive approach to transport for the county, including substantial public transport investment (including the St Ives to Cambridge busway, itself not without controversy). Further consultation and scheme development is taking place and formal submissions may be made to government early in 2008.

The three major proposals for charging are set within a comprehensive approach to the transport problems of the area, including substantial public transport investment and improvement; there already has been extensive explanation and consultation with stakeholders

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and the public at large; in general the rationale and the benefits have been explained and are evident; and funds raised are to be used locally for transport purposes. In this respect most of the boxes for a successful development of a charging scheme have been ticked. Yet none are finding it easy to progress practical proposals.

Let us now review more generally some of the main challenges.

TAKING ROAD USER CHARGING FORWARD – THE KEY CHALLENGES

Public understanding and acceptance

This is at the heart of the current difficulties. Mention has already been made that the public do not instinctively comprehend or accept the economists' argument about using price to manage demand. This is reinforced by the valuable report *Winning the debate on road pricing*[7] published by the Institute for Public Policy Research. This indicated that while the public accepts congestion is a problem, and that it needs radical solutions, road pricing is not seen as intuitively effective or relevant. Other measures, such as improving public transport, are more readily suggested as effective solutions to addressing congestion. Examples of successful schemes are often dismissed as being special cases, particularly as public transport is seen as better in those areas.

Some market research done in London about the congestion charge but before it was introduced also illustrates this: it seems that when asked the question 'what measures would reduce congestion in central London' people placed public transport improvement at the top of the list, and the congestion charge came towards the bottom. When asked 'and how should public transport improvements be funded', the congestion charge was top of the list!

If this indeed captures public understanding, then RUC appears to be seen as another way of raising money to fund transport improvements, which will reduce traffic congestion, not as having a direct effect on congestion itself. Yet transport planners, economists and policy-makers know from experience that pricing can and does influence travel behaviour, and that the models which predict behavioural responses to pricing and road user charging are generally right. So we seem to have a problem....! Should we expect that the reality of the London scheme and its effects has changed people's understanding; perhaps in London but not necessarily in the rest of the country.

But the IPPR report identifies two other critical issues as well, each of which touch a current public nerve. The first is 'stealth taxes'. The argument goes like this: because road pricing is not seen as *prima facie* effective in reducing congestion, it is not seen as a plausible motive for bringing in a charge. Second, people feel motorists already pay more road taxes than they should, and are an 'easy target' government fundraising initiatives. Third, most people feel they are not able to avoid the trips they make by car, so the government is simply charging them more to drive.

The other is to do with privacy, surveillance and loss of freedom. There is a sense that road pricing (in its full *nationwide* form) is trying to control where and when people travel, and that this is informed by a 'big brother' system for tracking all the journeys that people make.

Significantly, those elements of the media opposed to RUC have already used the privacy and the 'stealth tax' arguments extensively.

The famous Downing Street petition which in a few weeks attracted 1.7m 'signatures' wound up people's fears on exactly these two issues

Democracy in action?

The government's proposal to introduce road pricing will mean you having to purchase a tracking device for your car and pay a monthly bill to use it. The tracking device will cost about £200 and, in a recent study by the BBC, the lowest monthly bill was £28 for a rural florist, and £194 for a delivery driver. A non-working Mum who used the car to take the kids to school paid £86 in one month. On top of this massive increase in tax, you will be tracked. Somebody will know where you are at all times. They will also know how fast you have been going, so even if you accidentally creep over a speed limit, in time you can probably expect a Notice of Intended Prosecution with your monthly bill.

*If you care about our freedom, and stopping the constant bashing of the car driver, please sign the petition on No 10's new website (link below) and **pass this on to as many people as possible.** hyperlink "<http://petitions.pm.gov.uk/traveltax/>" <http://petitions.pm.gov.uk/traveltax/>*

Whatever one's views on the language and representation of the issue in this statement, it is easy to understand how - given the state of public policy development and public knowledge about RUC - it attracted as much support as it did.

Relevance of the climate change debate and reducing vehicle carbon emissions

What about harnessing road pricing to help incentivise people away not to drive cars so much, given their contribution to carbon emissions? My own view is that the RUC issue is complicated enough without seeking to load on it other public policy objectives. The IPPR quote their own attitude research as indicating a degree of uncertainty about climate change and what to do about it (although public understanding may have moved on in the year since this research was quoted), and a tendency to look to technology solutions - greater energy efficiency, alternative fuels, etc - or to other sectors for reduction in carbon emissions, rather than changing transport and travel behaviour. This may change as public awareness and concern about climate change increases.

However, looking at the policy instruments available, a quicker and more effective way of reducing carbon emissions from cars lies in incentivising the purchase and use of lower carbon vehicles (diesels, hybrids, lighter cars etc) through the taxation system. The company car tax system in the UK has for over 5 years now strongly incentivised the use of lower carbon vehicles, and has been effective in that as also in reducing the number of company cars in total. The recent steepening of the graduated Vehicle Excise Duty (VED) for cars according to their carbon emissions will increase the incentives for private car owners as well, but in my view it could be made substantially steeper (ie much higher VED for high carbon vehicles, and continuing reduction in VED for the very lowest).

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A longer term development of RUC could see charges (assuming a distance-related basis) being a function not only of the nature and condition of the roads concerned but also set according to the carbon emission characteristic of the vehicle. I would this as a feature only of a full national distance-based charging system (though not necessarily *nationwide*).

Part of a city economic strategy and integrated transport plans

The placing of road pricing in an integrated transport context - and associating it with complementary public transport, pedestrian, public realm and other improvements - meets both the expectations of the public at large and the natural approach of transport and city planners. As already mentioned, the city and city-region plans emerging now within UK reflect this.

But Greater Manchester, West Midlands and Cambridge have also set congestion charging in a wider economic and competitiveness strategy. The rationale is that congestion needs to be managed down, and transport accessibility enhanced, in order to sustain and improve the competitiveness of the city and its economic prosperity. This means better public transport and speedier, more reliable and un-congested movement of people, service vehicles and freight within and to the centres of the city and employment. Greater Manchester has argued that the prospective growth of employment would be curtailed by some 30,000 jobs were congestion not successfully tackled. This dimension and the arguments supporting it have been critical in engaging and securing the support of the business community in the different cities.

The elected leaders promoting the Greater Manchester TIF bid proposals set themselves four 'tests' (the AGMA tests) which would have to be satisfied before they would feel able to support the bid. These tests embraced

- significant investment in public transport improvements, including the Metrolink and enhanced capacity *before* charging was introduced
- measures must complement competitiveness and inclusion in the sub-region
- measures must be acceptable to the business community as well as the public
- measures must be relevant to where congestion exists or may emerge in the future.

Prima facie there are difficulties in securing improved and integrated public transport in a deregulated bus regime, as local authorities outside London have almost universally found in the 20 years since deregulation. The emergence of Quality Partnerships in recent years has enabled provided a framework for cooperation and joint planning of service and 'track' improvements. The Transport Act 2000 created the potential for a franchise-style or contract-style approach to bus service planning and provision (potentially similar to London) through the oddly-named Quality Contract, but the hurdles for its implementation were set so high that none has been implemented; and some of the challenges of its implementation - such as the suspension of competition and the question of compensation to operators so excluded - have never been tested.

The current draft Local Transport Bill due to be introduced to Parliament this session does make provision for easing the hurdles for Quality Contracts, but it also makes easier and more comprehensive the voluntary partnership approach to bus service improvements and integration.

It is significant that the Greater Manchester TIF bid, with ambitious and far-reaching proposals for public transport improvements, has been based not on a quality contract regime but on a strategic partnership approach between the GMPTC and the Manchester bus operators, through their association GMBOA. GMBOA has been actively and imaginatively promoting a partnership approach, with voluntary commitments to service improvement[8] which manifest an ambitious vision about what can be achieved within the present regulatory framework.

The success of congestion charging in London has been in considerable part due to the high quality public transport system already available as an alternative for journeys to and within central London, and reinforced by the service improvements (especially to buses) facilitated both by the reduced congestion in the centre and by the revenue generated by the scheme.

And as already mentioned, the long term transport strategy for London - the T2025 Strategy - embodies a wide range of measures to cope with economic and population growth, and to manage congestion particularly outside London, including the development and implementation of a distance-based road charging system for Greater London as a whole.

Hypothecation and the use of revenues

Probably against HM Treasury's better judgement at the time, both the Greater London Authority Act 1999 and the Transport Act 2000 provided for the hypothecation of road pricing revenues for local transport purposes for a defined period of time. All the experience to date, coupled with a better understanding of where the public at large are coming from, suggests that this is an absolute essential of a local or regional application of RUC.

But the real issue is additionality. The Treasury can allow you to keep the revenue, and then still dock your general transport grant by that amount. There is strong evidence that in spite of TfL's very generous financial settlement, there was an element of holding back an amount equivalent to the funds raised by congestion charging.

The problem is that once the first year or two are past, you will never really know anyway! I believe that it is the appearance of hypothecation which is important for public acceptance, rather than the reality of whether Treasury allows for it in determining other transport funding.

This question recognises it is not practical to consider making any compensating reductions in other forms of road taxation (nor easy to make any other tax reductions) applicable to a local or regional area. Yet the question of compensating reductions in taxation is necessarily part of the public debate on a nationwide scheme of road pricing. Some consumer research has suggested that revenue neutrality across all forms of road taxation would help to make RUC more acceptable - for example a compensating reduction in fuel tax - but there needs to be greater understanding of who the winners and losers are in that equation.

A nationwide scheme of RUC designed to reflect and price against congestion would impose substantial costs on road users in the Greater London area (responsible for a significant proportion of the UK's total congestion), other metropolitan areas and some key interurban motorway and trunk road corridors. The 'winners' would be those living in rural areas and uncongested freestanding and smaller towns. The 'income distribution' implications of that are profound, and may give rise to unintended consequences that do not yet seem to have widely debated.

But if a nationwide scheme emerges after a period of successive and hopefully successful) applications of RUC in cities and city regions, in which local decision-making and hypothecation are embedded features, who makes the decisions about what charges and to whom does the revenue go? Would it be a two-tier scheme, starting with a base nationwide system of charges, and then adding locally-determined increments to those charges based on local congestion, and the additional revenue accruing to those local authorities? Who then makes the decisions about the Highways Agency and other interurban roads, and where does the revenue go?

With these uncertainties, it is understandable that the current policy and professional focus is entirely on local and regional RUC schemes, locally promoted and locally determined, with revenue hypothecated to deliver integrated transport plans for the area.

Technology and administration

The technology issues for road pricing are much discussed, but over the longer term are I believe constitute no hindrance to implementation of either an area/cordon system or a distance-based system. It is just important to make the right decision about what to do and when.

In the short term, it seems that GPS technologies for distance-based systems are not yet reliable enough, certainly in cities with many tall buildings, to pinpoint exact streets and locations with a reliability sufficient to base a legally enforceable charging system. This seems to be the finding of recent practical trials carried out and reported by TfL. Currently DfT is letting contracts for trials of a number of technology and systems proposals embracing this and other methods of identification, tracking and reporting vehicles. I am confident that technology based on satellite-positioning will provide robust enough solutions at a point in the future.

Meanwhile there is general agreement that the London-style ANPR system is too expensive to repeat, and that Tag and Beacon (based on DSRC protocols - Dedicated Short Range Communications) supported by ANPR for enforcement is the appropriate approach just now. Again this only provides information about a spot presence, and can be applied in a cordon, corridor or area basis, but not for distance-based charging.

It is interesting that Norwich Union already offer the choice of a GPS-based time/distance charging for car insurance, instead of a fixed sum for the year. This has given rise in some quarters to the thought of a voluntary approach to the adoption of RUC.

Tolling on interurban roads and motorways is well established, but tolling or RUC for congestion management is in its infancy. The economic case for trialling road pricing is as strong on key congested sections of the national freeway or motorway network as it is in any conurbation. There is some concern about diversion to parallel routes, but that should not be a showstopper. The points is that tailor made solutions are possible - for example, on the M25 around London, the worst congestion is at points where drivers come on to the M25 for only one or two junctions and go off again. A one-off ramp charge of say £2 would deter short distance users but not long distance users.

CONCLUSION

The last few years have illustrated very clearly that turning a neat piece of transport economics into practical and implementable transport policy holds immense challenges. The technology issues are not the most significant, except in so far that distance-based charging is not yet robust enough for practical use and only area/cordon/corridor technologies are currently available.

The government's approach of taking RUC forward on a local/regional basis, as part of integrated transport plans, with a rationale and benefits that should be evident to local communities, and with the objective of congestion management to sustain and grow city economies, seems the right one. The challenges that individual cities and city regions are facing in preparing and securing support for such plans are significant, but I am confident that they will come through.

It is nevertheless important that government continues to guide and require the adoption of national protocols and principles to ensure that local schemes - while meeting specific local objectives - are nevertheless interoperable, and it is good to see that DfT take this very seriously, as well as their role in leading and coordinating the development, testing and validation of new technologies.

There are some more profound issues about the migration to a nationwide scheme which at the right time will need further analysis and public debate.

All of us closely involved - transport professionals, policymakers, opinion formers - need to embrace and comprehend the very real difficulty that the public at large have with many aspects of RUC, to consider how best to manage and meet their concerns and expectations, and to find ways to take forward the right policies to manage congestion for the future and to take the public along with us, believing and accepting this is the right approach. After all, so far as long term road congestion is concerned, there is no plan B!

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