ROADS TO RECOVERY

Reducing congestion through shared ownership

Ian Mulheirn and David Furness
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## CONTENTS

Acknowledgements.................................................................................................................... 6

About the authors.......................................................................................................................... 7

Executive summary...................................................................................................................... 8

Introduction – the congestion challenge................................................................................... 10

The costs of congestion............................................................................................................... 11

Road user charging is the only viable solution......................................................................... 13

How charging can help............................................................................................................. 13

The opposition to road pricing.................................................................................................. 15

Winning the argument................................................................................................................. 15

Voucher mutualisation............................................................................................................... 16

What would be the value of each citizen’s stake?..................................................................... 16

Introduction – the congestion challenge................................................................................... 18

Costs and benefits for the average driver.................................................................................. 18

Conclusions................................................................................................................................. 20
ACKNOWLEDGEMENTS

The authors would like to thanks Joanna Konings and Jeff Masters for their comments and contributions. Any errors and omissions remain the sole responsibility of the authors.
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EXECUTIVE SUMMARY
The current political debate is focused on the balance between public spending cuts and tax rises that will be needed to fill much of the £167bn black hole in the public finances. But the importance of economic growth in dealing with the fiscal crisis should not be overlooked. The congestion that clogs up our road network is a major drag on UK productivity and therefore a substantial impediment to a vibrant and sustainable economic recovery, as British employees and companies labour under the huge hidden costs of a creaking transport infrastructure.

There are financial, environmental and well-being costs to congestion. The already substantial financial costs to businesses and households each year are set to grow by an extra £22bn by 2015 according to Sir Rod Eddington’s 2006 study. The environmental impact of congestion is also significant. Emissions of CO$_2$ and other greenhouse gases are twice as high in congested traffic as they are for vehicles on free-flowing roads. And the impact of congestion on people’s quality of life is no less serious for its being difficult to measure.

But solutions to the serious and growing congestion crisis have eluded politicians. Road-building is costly, slow and unpopular, making unlikely that we will build our way out of the problem, even if it were agreed that we should. Modal shift of passengers onto public transport will never be large enough to solve the problem on its own since 92% of passenger kilometers are undertaken on our roads. The only solution therefore lies in making better use of the existing road network.

Road user charging is the policy solution, but a political hot potato. To overcome public opposition to charging, a radical strategy is needed to separate the policy of road user charging from voters’ fears that they’ll be made to pay more, with politicians using the policy to raise more revenue to pay down the state’s debt mountain. Voters must be presented with a policy that makes road pricing something that is in their interests because they, and not the Treasury, benefit directly from the proceeds. They must also retain ownership of the roads, rather than seeing them sold off to private financiers.

This report recommends that these goals can be achieved through a ‘voucher mutualisation’ of the Strategic Roads Network. Unlike the waves of privatisation of the 1980s, under this policy every citizen in the UK would receive a tradable share in the road network for free. This shift will facilitate the introduction of road user charging and would be accompanied by the abolition of Vehicle Excise Duty. Any profits from operating the roads would then go to the shareholders: British citizens.
At 10p per mile - similar to charges in continental Europe - we can expect each citizen’s share to be worth some £1,500 on the open market, after taking account of the investment that road tax currently funds. Individuals would have the choice of whether to hold on to their share and benefit from the profits, or sell it and take the money.

Based on transport survey data, our analysis demonstrates that the average driver would be significantly better off under this scheme, paying around £75 per year less in tolls than they currently do in road tax. Heavy road users would pay more, but would save on the huge time and fuel costs of congestion, the burden of which currently falls most heavily on them. Foreign hauliers, who currently use UK roads for free, would also be required to make their contribution to maintain the UK roads network.
INTRODUCTION – THE CONGESTION CHALLENGE

The road network is a shared resource and a key part of our national infrastructure. Roads enable economic activity, from freight handling to the travelling salesman, as well as improving our social lives. The country is criss-crossed with a network of roads from the most imposing motorway to the smallest country lane. In 2007, 84.5% of all passenger transport in the UK was by car, van or taxi, with a further 6.2% of transport by bus and coach. Our roads are nothing less than the arteries of the UK.

The crucial place of roads in our national life is clear. But policymakers have shied away from bold decisions to ensure that our road infrastructure is put to best use. The road network is a finite resource – there are a limited number of cars that can travel at any given moment. This fact is clear to any motorist. But congestion remains a growing feature of Britain’s roads.

Delayed journeys are measured by government across the inter-urban Strategic Roads Network. The metric used is the delay in minutes per 10 miles (derived from the differences between observed journey times and a reference journey time) experienced on the slowest 10% of journeys for each monitored route. This average delay is 3.46 minutes per ten miles. So, on a journey between London and Birmingham a motorist faces a potential delay of over half an hour because of congestion.

Although the number of vehicles has increased substantially over the years, congestion is not simply a result of more cars on a road network that has hardly changed. Congestion reflects poor use of the roads we have. Since the costs of driving are unrelated to the time of travel or route, there are minimal incentives for drivers to consider when journeys should be undertaken. The lack of any pricing structure for road users means that, unlike on other forms of transport where peak- and off-peak fares help to use capacity most efficiently, road use is incredibly inefficient.

Each driver quite rationally follows their own self-interest. In practical terms this means that drivers set out on a journey at the time most convenient to them and take the most direct route. However the aggregation of many individual decisions often results in a collectively irrational outcome that is contrary to the best interest of all drivers. So, the independent decisions of many thousands of weekend holidaymakers to set off as soon as possible after the

1 RUA, Road File 2008/09 (London, 2009), 13
2 The inter-urban network consists of all motorways and trunk ‘A’ roads managed by the Highways Agency, as well as the M6 Toll.
end of the working day on Friday results in gridlock – a bad outcome for all. This phenomenon is known as the tragedy of the commons: individually rational decisions resulting in collectively irrational outcomes.

Congestion is not just an issue of quarrelsome journeys on the M25 and truncated bank holiday weekends. The costs of this inefficient use of such a precious resource to the people of the UK are huge. These come in three forms:

- Costs to business and the economy;
- Costs to the environment;
- Costs to individuals in their personal lives.

THE COSTS OF CONGESTION

There is a need for new public policy solutions to help solve the challenge of a congested road network that is “the backbone of the UK economy”4. The CBI has claimed that congested roads cost up to £20bn a year5. And in a response to a report by the Transport Committee the Government acknowledges that “congestion is a burden on the productivity of our businesses, a deterrent to inward investment, and a cause of unnecessary carbon emissions.”6

Sir Rod Eddington’s 2006 review of the Britain’s transport infrastructure came to similar conclusions. He reported that, if left unchecked, the annual costs of congestion will grow by an extra £22bn by 20257. Road pricing can relieve these costs from British businesses, boost productivity and foster the recovery.

As Eddington said, “the performance of the UK’s transport networks will be a crucial enabler of sustained productivity and competitiveness”8. These are burdens that UK companies and individuals cannot bear if we wish to see economic growth rebound from deepest recession for decades.

But the objective of reducing congestion is not simply an economic argument. Crowded roads damage the environment and result in an unpleasant motoring experience.

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5 CBI, Is transport holding the UK back? (London; CBI, 2004)
6 Department for Transport, Report to the Transport Committee Report on Taxes and Charges
7 DfT, Eddington Transport Study., 6.
8 DfT, Eddington Transport Study, 1.
Cars pollute more when roads are crowded (see Chart 1). They are less efficient at low speeds and stop/start driving causes emissions to rise. As the Highways Agency notes, “Reduced trips, improved traffic flow and less stop-start driving all reduce CO\textsubscript{2} emissions, noise levels and improve air quality\textsuperscript{9}”. One study concluded that expanding an overcrowded motorway by one lane leads to a carbon emission reduction of 38\%\textsuperscript{10}. At moderate to severe congestion levels, externally imposed delays cause one- to two-thirds of vehicle emissions\textsuperscript{11}.

**Chart 1: Free-flowing traffic can halve CO\textsubscript{2} emissions**

Aside from the obvious environmental implications, it’s important not to downplay the effects of congestion on personal well-being. A study by the Department for Transport found that many people had made changes to their journey patterns because they felt congestion had got worse in recent years on the routes they travel, and as a result respondents were now giving up more of their free time than they used to in order to accommodate it. One typical reaction was as follows: “Sometimes it’s like oh my god, I can’t leave any earlier. I don’t want to get up at 6am to get in for 9.30’ (17-24 year old male).”\textsuperscript{12}

\textsuperscript{9} Highways Agency, “Tackling congestion by influencing travel behaviour”
http://www.highways.gov.uk/knowledge/9561.aspx

\textsuperscript{10} T Knudsen and B Bang, *Environmental consequences of better roads*, (Trondheim; SINDEF, 2007).


\textsuperscript{12} Department for Transport, “Perception of congestion on motorways”
These costs fall on private individuals and are therefore not reflected in any negative effect on economic growth. However, they are no less costly to the British people than for that.

There is a glaring need for public policy intervention to deal with the issue of congestion. But the options are limited and the case for road pricing is overwhelming.

**ROAD USER CHARGING IS THE ONLY VIABLE SOLUTION**

That the congestion crisis must be tackled for reasons of Britain’s future prosperity, environment and well-being is clear. But the policy debate around what to do remains stuck in the dark ages. Policies based around reducing congestion by encouraging people to use public transport (known as ‘modal shift’) can be helpful at the margin. But with 92% of domestic passenger kilometres being traveled on our roads, modal shift will not solve the congestion crisis. For the time being, at least, there is no alternative to the car.

While more road capacity is badly needed, road building is unpopular, slow and extremely expensive. All of these things make any achievable road-building strategy for congestion insufficient in the coming decade of fiscal austerity.

The only remaining solution is for us to use our existing infrastructure better. Pricing road use is the answer to this collective action problem. Markets offer a solution because they give price signals to ensure that the use of scarce resources is prioritised. Hence introducing a market into road use encourages drivers to make better collective decisions for mutual benefit.

The London congestion charge, while a rather unique experiment, shows what can be achieved. In the first four years of the scheme’s operation, traffic in the capital fell by 21%, and later rises in congestion can be traced to increased deployment of bus lanes and more road works. Without the charge, London would, by now, be gridlocked.

**HOW CHARGING CAN HELP**

Motorists currently pay Vehicle Excise Duty (VED). This road tax raises money for the Exchequer and provides a resource to invest in road maintenance and improvement. Once VED is paid, motorists are free to travel as much or as little as they like. With few exceptions (such as the M6 toll road and London congestion charge) there are no road charges for drivers.

This is an inefficient way of distributing the shared resource that is the road network. An upfront payment followed by totally free usage offers no incentives for drivers to take

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13 RUA, Road File 2008/09 (London, 2009), 13
14 The Independent, The big question: has the congestion charge been effective in reducing London’s traffic? (London, 13 February 2008)
measures that would reduce congestion, such as sharing cars, driving less or travelling at
different times. The primary economic argument is that each driver does not face the total cost
of their journey. People who drive a little pay too much, while those who drive a lot pay too
little. The consequences of car journeys, such as increased congestion and higher emissions,
are not borne by the driver but by society as a whole.

It is well recognised that an alternative to VED as a mechanism to affect driver behaviour
would be to price road usage. Charging for use would help to reflect more closely the actual
cost of each journey rather than allowing the individual driver to ignore the wider impact of
their behaviour. Road pricing makes road usage more efficient by making drivers face the costs
to others of their choice to drive at a given time of day – forcing them to weigh-up their need
to travel against that of others, mediated by the price mechanism. In theory, then, road pricing
is a solution to the problem of congested roads. What about the evidence?

Numerous studies have been done to assess how responsive drivers are to changes in the
price of motoring. The literature suggests that motoring is subject to price elasticities –
behaviour changes as prices do\(^\text{15}\). Price changes can have a variety of impacts on travel,
affecting the number of trips people take, their destination, route, mode, travel time, type of
vehicle, parking location and duration, and which type of transport services they choose\(^\text{16}\).

This idea is not a new one. As industry expert Edmund King commented, “Economists have
been talking about road pricing for more than 40 years and it always seems to be ten years
away. If the Government is serious about changing the way we pay to travel then a fresh
approach is needed.”\(^\text{17}\) Many stakeholders are agreed that road pricing will make roads more
efficient, benefiting the economy, the environment and individual drivers.

Many organisations, not least the SMF, have proposed road charging only to find that public
opinion remains firmly against the idea. Since road pricing has the potential to make everyone
in the UK better-off, why are people so against it? The answer is that those who have
promoted charging have often seen it as a new way to raise money from highly taxed
motorists.

**THE OPPOSITION TO ROAD PRICING**

15 Graham and Glaister, *Review of income and price elasticities of demand for road traffic* (London; Centre
for Transport Studies, 2002).
16 T Litman, *Transportation Elasticities: how prices and other factors affect travel behaviour*, (Victoria;
Victoria Transport Policy Institute, 2009), 2
17 Quoted in RAC Foundation, “Road Block to Road Pricing?”
There has been fierce public opposition to the introduction of road charging. Following a 2007 SMF publication on road charging a petition on the Downing Street website attracted over 1.7 million signatures from people against the idea. Plans in Manchester for a congestion charge were decisively defeated in a referendum – 79% voted ‘no’.

The opposition to road pricing stems from the sentiment that any new charge is simply a way of government taxing more. Manchester MP Graham Stringer opposed the proposed congestion charge, saying “You have to come up with an extremely good scheme whereby you reduce other road taxes if you ever want road pricing by consent in this country.”

Those who oppose road charging as simply another tax have a point. Many proposed schemes have been positioned as revenue raisers for government rather than a system to benefit motorists. For instance, in summer 2009 the bank N.M. Rothschild proposed a £100bn privatisation of the motorway network to help fill the black hole in public finances. Whatever the merits of this idea it would be politically difficult to implement. Drivers and citizens might rightly feel that they are now being charged to use their roads that have been sold off to a third party. This would be hard for voters to swallow, and this is the essential political bottleneck that has prevented politicians from releasing the much-needed benefits of road user charging.

In order to win the argument for charging, citizens must benefit directly and financially from any reform. Profits from charging should go to citizens rather than to the Treasury. Only by aligning the method of charging with the interests of road users and citizens can they be made to support the case.

**WINNING THE ARGUMENT**

For government ever to overcome public opposition to road pricing the following conditions must be met:

- Voters must be convinced that they will benefit from the proceeds of road charging, not ‘faceless bureaucrats’ or ‘fat cats’.
- Voters must have the right to retain ownership of their roads.

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18 The Guardian, “Road pricing blow as Manchester rejects congestion charge”, http://www.guardian.co.uk/politics/2008/dec/13/congestion-charging-transport
19 Quoted in ibid.
20 The Times, “NM Rothschild pitches motorway privatisation plan” http://business.timesonline.co.uk/tol/business/industry_sectors/banking_and_finance/article6814923.ece
So how can these conditions be met and road charging be achieved? Privatisation has been a growing trend across Europe and the USA, with McKinsey estimating that the amount of private capital available to invest in public infrastructure grew from $5bn in 2004 to $35bn in 2007.\(^1\) The state of Indiana has signed a $3.5bn 75 year lease with a private company that will now operate its roads. Should the government simply sell off the road network and leave the market to set road prices?

There is good reason to believe that an outright sale of the network to private investors is not an attractive option for this country, where the public would oppose any sell-off. The opposition to traditional privatisation would be immense, leading to criticism that government is ‘selling the family silver’ to patch a hole in the public finances. The concentration of road ownership among powerful financial institutions would be unpopular given current sentiment, and arguably unwise for investment incentive reasons. For road pricing to work, the process of privatisation cannot simply be a sell-off.

**VOUCHER MUTUALISATION**

The challenge is to introduce road pricing without stoking public fears of a tax grab on motorists. As a way of making road pricing acceptable to the public voucher mutualisation should be implemented.

- Every citizen should be issued with a free share in the Strategic Roads Network – trunk roads and motorways;
- Holding companies, owned by citizens, would be responsible for operating the roads, charging for their use and reinvesting in the network;
- Vehicle Excise Duty would be scrapped; and
- Citizen owners of the road network who retain their share would receive any profits from their operation.

Individuals would be free to trade their share as they wished. Some might prefer to sell and profit immediately from their stake. Others would keep hold of their share and benefit from the profits made by holding companies. No citizen would be disadvantaged as shares would be issued for free. Every citizen would therefore be able to make a profit.

The abolition of Vehicle Excise Duty would allay public fears that road pricing is simply another way of introducing a tax. Indeed the abolition of VED combined with user charging would also

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\(^1\) P Baxandall, *Road privatisation: explaining the trend, assessing the facts, protecting the public*, (Boston; US PIRG Education Fund), 2007
ensure that foreign drivers on UK roads make a fair contribution to their maintenance, rather than being subsidised, as currently, by UK taxpayers.

The introduction of road pricing will have an impact on road usage and allow market mechanisms to achieve the socially valuable goal of reduced congestion. This will release value in terms of quicker transportation, less fuel consumption, and lower emissions.

The SMF voucher-mutualisation-plus-road-pricing model fulfils every criteria: the political case is saleable, and road pricing releases value in the economy that is distributed fairly. But what objections might there be to this approach? First, is it really technologically feasible to implement charging on the entire strategic road network? Second, is voucher mutualisation the right way to achieve it?

Road pricing on roads other than just motorways raises questions about the necessary technology. Many have claimed that the technology is not available to price in a fluid way. But far from being the stuff of science fiction, the necessary technology is available now. Indeed, last November the Dutch government announced that it intends to bring in a satellite-based tracking system to charge drivers based on distance travelled. The proposed scheme will be operational by 2012, indicating that such a system could be quickly copied in the UK.

Voucher mutualisation of the UK’s road network would be similar in approach to a group of policies deployed elsewhere in the world in the 1990s, known as voucher privatisation. This approach has a mixed history when implemented in the wrong conditions. Often trialled in transition economies moving from state socialism to capitalism, there are potential pitfalls. The most serious objection is that such policies led to an oligarchy that exploited the poverty of fellow citizens, who had no choice but to sell their stakes to richer compatriots at knock-down prices. By manipulating the market in this way, a minority were able to become immensely wealthy and control large parts of public utilities, as happened in Russia.²²

Additionally the Czech Republic, Slovakia and Lithuania all carried out rapid equal access voucher privatisation. In these cases a weak legal framework combined with dispersed ownership led to poor corporate governance in operating companies.²³ However there are good reasons to suppose that these problems would not occur in this country:

- Corporate governance rules are strong and capable of preventing the concentration of ownership that occurred in transition economies.

²² J Siglitz in G Roland (eds), Privatisation: successes and failures (Columbia, 2008).
Citizens are relatively wealthy, and even the poorest have access to significant state support in times of unemployment, indicating that many people would not have to sell their share as soon as receiving it in order to put food on the table. This would prevent oligarchic dominance of road ownership.

As a stable and mature democracy, the UK has experience of effective regulation. A new regulatory body could oversee both the share transfer and the road pricing system.

WHAT WOULD BE THE VALUE OF EACH CITIZEN’S STAKE?

There are 61.4 million citizens in the UK. Under the SMF scheme, each person would receive one sixty-one-millionth of the value of the UK Strategic Roads Network (SRN). What would the value of each share be?

- According to the Department for Transport, the total number of vehicle miles travelled on UK SRN in 2008 was about 102bn miles.\(^\text{24}\)
- If our SRN was priced at 10p per mile (less than in comparable countries), the total revenue from operating the network would be around £10.2bn per year.
- In order to fund the abolition of existing VED, at £5.2bn per year, net revenues from road pricing would fall to (£10.2bn – £5.2bn) £5bn per year.

Taking the average price to earnings ratio of the FTSE 250, at 19, implies that the value of the UK SRN could be around £95bn. This valuation is broadly in line with the £100bn valuation calculated in the N.M. Rothschild proposal.

This would imply that each citizen in the country would receive a voucher to the value of over £1,500.

COSTS AND BENEFITS FOR THE AVERAGE DRIVER

Costs

According to the National Transport Survey, the average (median) road distance each year by drivers is around 5,100\(^\text{25}\). In 2007, around 31% of all road journeys were on motorways, implying that the average driver completes around 1,580 miles per year on the motorway.

Such a person might, if they travelled in the daytime, pay annual road tolls of around £160 per year.

\(^{24}\) DfT, “Transport Statistics great Britain 2009 edition”
\(^{25}\) DfT, National Transport Survey 2008
Benefits

- As described above, each citizen would benefit from a voucher representing their share of the national SRN worth over £1,500.

- In addition to this, each vehicle owner would no longer have to pay VED, which is around £235 per year for a standard 2 litre petrol engine car, and £425 in the first year of owning a new car.\(^{26}\)

- Any profits from the operation of the roads that are not reinvested in the motorway network in order to improve it - over and above the current level of maintenance – would be paid out to shareholders. Such profits could be up to £80 per year if no new investments were made.\(^{27}\)

- Foreign drivers would pay on toll roads where they currently do not contribute to VED. They would therefore pay a fair contribution that reflected their use of UK roads.

Taking everything into account, the average car owner would be better-off under SMF voucher mutualisation to the tune of a £1,500 asset and £75 per year. The average two-driver household with two children, would be better by around £6,000 in assets and some £150 per year. Even heavier users of motorways would benefit from the value of the voucher plus any profits generated by the operating company. While they would pay significantly more in tolls, heavy users would also be the main beneficiaries of reduced congestion.

The above calculations are approximate and implicitly assume that people will continue to travel at the congested times they currently do. Some behavioural change would occur, and indeed is the aim of the policy. With a smarter and more fluid pricing structure - which would be available under a satellite tracking system – than the blunt one proposed above, and changes in driver behaviour at the margin, the costs and benefits to drivers could be different. Nevertheless, this calculation has shown that it should be possible to construct a system in which the average driver is substantially better off. The Dutch government, in replacing all vehicle taxes with user charging, estimates that six out of ten Dutch drivers will be better off.

CONCLUSIONS

The scheme set out above is a practical road map to road pricing. It offers a public policy solution to the challenge of congestion that benefits motorists while also making the external

\(^{26}\) DVLA, DfT 2008

\(^{27}\) Based on net revenues of £5bn per year, as calculated above.
costs of their decisions more explicit. It also offers a political solution to a policy that has to date proven politically toxic.

Voucher privatisation of the road network is not a way of patching up the public finances, nor should it be. If the exchequer were to benefit from a sell-off of the road network, citizens might understandably feel that their property had been used to fill the Government’s coffers. Rather, this policy offers a way of overcoming public resistance to a policy that is badly needed if we are to liberate British industry from the handicap of creaking road infrastructure that threatens our economic recovery.
Gridlock on our roads is a major impediment to economic recovery, as British employees and companies labour under the huge hidden costs of a creaking transport infrastructure. With the annual costs to the country set to rise by £22bn by 2025, politicians must now act to solve the congestion crisis. Using our roads better by charging motorists for how much, when and where they drive is the only solution.

To overcome the political objections to charging this report recommends a ‘voucher mutualisation’ of the Strategic Roads Network. Unlike the sell-offs of the 1980s, mutualisation would give every citizen in the UK a tradable share in their network for free. This shift would facilitate the introduction of road user charging accompanied by the abolition of Vehicle Excise Duty. Rather than going to the taxman, any profits from operating the roads would then go to the shareholders: British citizens.

Under the SMF’s proposals, the average car owner would be better-off, paying less in tolls than they currently do in road tax. It is established that each citizen’s tradable share would be worth around £1,500.