

# THE SLOWER SPEEDS INITIATIVE

## TAXING VEHICLE SPEED AND WEIGHT

### Discussion Paper for the 2003 Spring Budget

[www.slower-speeds.org.uk](http://www.slower-speeds.org.uk)

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#### Introduction

This paper is an updated version of a submission by the Slower Speeds Initiative to the UK Treasury, in advance of the Spring 2003 budget.

This paper makes recommendations for changes to the current Vehicle Excise Duty and company car taxation regimes. The proposals are a logical evolution of current taxation policy, and are suitable for implementation in the 2003 budget. Their focus is on providing incentives for the voluntary use of speed limiters, and on enhanced incentives for slower, lighter cars.

Three significant effects of car use are pollution, congestion and danger. Current vehicle excise duty and company car taxation policies only partially address these effects. Danger is the effect of car use that is least well recognised by government. The danger posed by any vehicle depends on its speed and weight. Rapid acceleration can also heighten danger. Speed and vehicle weight are also major determinants of the contribution that a vehicle makes to global warming.

Slower and lighter vehicles provide very significant benefits to the UK. They:

- reduce road danger, saving lives and cutting serious injuries;
- reduce the burden of road casualties on the health service;
- cut congestion due to road crashes;
- save police time and court costs;
- encourage walking, cycling and public transport;
- reduce driver stress and emissions of greenhouse gases.

Reductions in congestion, serious injuries and loss of life clearly have positive economic benefits for the UK, besides their obvious social benefits. However, there are also other benefits. Reducing risk in the road environment for pedestrians and

cyclists is indispensable, if sustainable alternatives to the motorcar are to be viable options for most people. Under current conditions, those who use the roads without cars must be brave and determined. Policies to reduce congestion, pollution and CO2 emissions can and should take more account of danger reduction. Fiscal measures are one example of such policies.

#### 1. Background to the proposals

The official figure for the annual economic value of preventing road crashes is £17bn. This figure includes the human costs, lost output, medical and ambulance costs, police work, insurance and damage to property. The 2002 Transport Select Committee Inquiry into Road Traffic Speed reported:

*If drivers travelled at lower and more appropriate speeds, the savings to society would be immense, as the savings to individuals would be. If the measures recommended in this Report were to achieve a reduction of road traffic accidents by a third, the savings to society could be as great as £100 million per week (House of Commons 2002, para 16).*

Among the measures recommended by the Committee was strong support from the Government for Intelligent Speed Adaptation (ISA) technology. As the Committee pointed out, 'ISA offers the opportunity to put an end to illegal and inappropriate speed' (House of Commons 2002, para 103).

It is estimated that equipping 60% of the UK vehicle fleet with ISA would reduce all injury crashes by one third and fatal crashes by two thirds (Carsten and Tate, 2000).

Government sponsored research from Leeds University and the Motor Industry Research Association calculated that ISA-equipped vehicles could produce a savings over 30 years equivalent to a £79billion

gain to the UK today (Carsten and Tate, 2000). The benefit-to-cost ratio of ISA is between 12.2 and 16.7.

The degree of public acceptance of speed limiters is already very substantial. In January 2002, a MORI survey was commissioned by jamjar.com, Direct Line's online car retailer. MORI's survey found that 51% of drivers would approve of the compulsory fitting of speed limiters on all new cars, to prevent speeding on any road or motorway. 43% would approve of retro fitting speed limiters to their existing car (MORI, 2002a).

MORI carried out a more recent survey for the FIA's 'Foundation for the Automobile and Society'. This survey found an even higher level of public acceptance of the technology. 58% of people would accept compulsory in-car speed limiters if road humps in residential streets were removed as a result (MORI, 2002b).

These surveys provide independent evidence of the public's desire for speed-limited vehicles.

#### 2. Current Vehicle Excise Duty (VED) and company car taxation policies

##### (a) Current policies

The UK's current VED and company car taxation policies reward vehicles with lower CO2 emissions. The current system is intended to encourage motorists 'to choose more environmentally-friendly vehicles and to continue the shift towards taxing usage rather than ownership' (HM Treasury, 2002, para 7.35).

Since 2001, the annual tax on vehicle ownership, VED, has been charged on new cars according to their CO2 emissions and type of fuel used. VED rates for vehicles are divided into five bands, ranging from £100 to £160. Each band, with a successively higher rate, corresponds to a successively higher band of CO2 emissions. There is an adjustment upwards to the

VED rates for diesel vehicles, and an adjustment downwards for clean fuel vehicles. In the 2002 Budget, the Government froze VED rates for cars and introduced a new low-carbon band offering a £30 discount for cars with CO<sub>2</sub> emissions not exceeding 120 grammes per kilometre (g/km).

Company cars are taxable at a percentage of the new value of the vehicle. The percentage rises with greater CO<sub>2</sub> emissions. The minimum tax rate is 15% of the vehicle's new value, for CO<sub>2</sub> emissions of 165g/km or less. The maximum rate is 35% of the vehicle's new value, for CO<sub>2</sub> emissions of 265g/km or more. These rate bands will tighten in increments of 10g/km in each of fiscal years 2003/4 and 2004/5 respectively.

Both the VED and company car taxation scales provide incentives for the purchase of new vehicles with lower CO<sub>2</sub> emissions. This in turn has led to a significant effort by manufacturers to produce vehicles of lower CO<sub>2</sub> emissions. The graduated VED scheme is an example of a successful pricing signal affecting the UK's vehicle fleet for the better. The European Commission now wants CO<sub>2</sub> based vehicle taxation, similar to that in the UK, to be adopted by other states in the EU.

The current taxation regime also provides some incentive for the purchase of lighter vehicles. A benefit of these vehicles is that they inflict less damage on people, other vehicles and property, in crashes at any given speed. At the very least, the tendency for weights to increase with each new generation of vehicles has been slowed. The graduated schemes have made employers and motorists more aware of one economic and environmental impact of their vehicles. So far, so good.

#### *(b) Inadequacies of the present VED and company car taxation schemes*

Because they ignore road danger, the rates do very little to reduce the £17 billion per year cost to the UK due to road crashes. This is an exceptionally costly missed opportunity. There are two ways in which the schemes fail in this respect: the narrowness of the graduated ranges for VED, i.e. that there are upper and lower limits on the pricing signal, and the neglect of vehicle use. Notably, the Government has previously stated its intention to address vehicle use, and needs ways of doing this.

*Narrowness of VED range:* The difference of £90 per annum between the lowest and highest VED rates is small in comparison with the purchase and insurance costs of a new vehicle. Therefore the incentive effect towards slower and lighter vehicles is less than it could be.

*Loss of pricing signal:* Both VED and company car tax have 'flat' regions in the curve of tax rate versus CO<sub>2</sub> emissions. These are the regions above and below the graduated portions of the charge curve. In these upper and lower regions, there is no incentive for further improvements in CO<sub>2</sub> emissions. Particularly significant here is the region above a CO<sub>2</sub> emission rate of 186g/km, the region where VED is the maximum charge. In this region, VED fails to provide any incentive for a private purchaser to choose a vehicle of lower emissions.

*Neglect of vehicle use:* VED and company car tax are taxes on the ownership of a vehicle. However, the costs to society mainly arise through usage of vehicles. These taxes are therefore very imprecise economic instruments for internalising the economic 'externalities' of vehicles. For example, a vehicle in the lowest VED band can produce more CO<sub>2</sub> than one in a higher band, if it is driven further per year. VED is levied per unit time period, in advance, and so constitutes a 'sunk cost' to the motorist. Once a driver owns a car, that driver will face a low incremental cost of making each journey. This makes each journey cheaper than its public transport equivalent and is a major cause of congestion. Basic economics shows that this imbalance distorts people's behaviour. In addition, increased car mileage increases the exposure of all road users to crashes.

Economists have in fact long argued for vehicles' costs to owners to be re-distributed, away from falling on ownership, and proportionately more onto use. Again, the public is ahead of the Government on this. 48% of those asked said they would support being taxed for the precise number of miles they drive if the average bill worked out about the same as current road user charges. (MORI, 2002b) The Dutch will introduce just such a system, the 'mobimeter', to charge for road use by weight, fuel consumption and distance travelled, in 2004 (Traffic Engineering and Control, 2002).

The present system only signals to drivers that CO<sub>2</sub> emissions are an environmental 'bad'. There is an important but missed opportunity to provide further pricing signals to drivers about other effects of their vehicles, especially danger.

### **3. Proposed Changes to VED and Company Car Tax Regime**

The incentive effects of the existing VED and company car tax schemes should now be extended. Moreover, they should signal to drivers that both CO<sub>2</sub> emissions and other effects of vehicles are economic and environmental 'bads'.

The changes proposed below are revenue-neutral, in order to maximise their political acceptability. They are designed to be implemented on vehicles sold after 1 March 2003, with only one change being applicable to vehicles dating back to 1 March 2001. Despite being revenue-neutral, these changes would benefit significantly both the UK's economy (GDP), and the UK's balance of payments.

#### *(a) VED*

##### **Three new rebates**

There should be three additional rebates on VED. Two would apply to vehicles that significantly reduce their negative economic and environmental impacts, and would be restricted to vehicles with CO<sub>2</sub> emissions of 120g/km or less. The third rebate should be for drivers who update their driving skills.

##### *(i) £100 maximum rebate for vehicles fitted with Intelligent Speed Adaptation (ISA) equipment*

Drivers should be encouraged to fit ISA voluntarily through the introduction of a rebate for the mandatory, dynamic version of this equipment. The amount of this rebate would be £100, or the entire VED charge, whichever is the lower.

ISA technology is characterised by how it intervenes, and the type of speed limit information it uses. 'Advisory' systems provide information about the speed limit. 'Voluntary' systems allow the driver to decide when to activate the speed limiter. A 'mandatory' system limits the vehicle speed at all times. The system can be 'dynamic', to allow for speed limits to be lowered according to traffic and weather conditions. Such dynamic limits are already used in the UK, on the M25, and

are communicated to drivers via over-head signs.

Ironically, currently available in-car speed camera warning systems also rely on this technology, informing drivers of both their speed and the speed limit. The components for ISA are already available in the UK market.

As an interim measure for eighteen months, this rebate should be available for vehicles electronically limited to the UK's national top speed limit of 70 mph. Manufacturers could easily meet this requirement immediately, and would have 'breathing space' to introduce ISA equipped vehicles by 1 September 2004. Notably, most German cars are already electronically limited to 155mph by their manufacturers. So 'fixed limit' technology is already widely in use, although programmed at a much higher limit. There is much active research across Europe into a variety of ISA technologies. This includes a small UK programme based in Leeds.

The largest trial to date, involving 5000 drivers over four years, was completed in Sweden in 2002. Speed limiters have proved very popular, with two-thirds of the drivers wanting to keep the equipment after the trials. They felt their driving had improved. Journey times were either unchanged or in some cases improved. This latter effect was due to more homogeneous driving styles. Fuel consumption was reduced. The Swedish National Road Administration has now decided to fit all of its own vehicles with ISA. Moreover the Swedish government is this year preparing a proposal that would provide tax advantages for safer vehicles (Swedish National Road Administration, 2002).

*(ii) £30 rebate for vehicles having a Euro NCAP score of at least four stars for pedestrian safety*

Euro NCAP crash tests are designed to rate both the safety of a vehicle to its occupants, and the safety of pedestrians hit by the vehicle. The scores for protecting occupants have risen steadily, and rapidly, in the last six years. The scores for pedestrians are practically unchanged over the same period. Clearly manufacturers need a further incentive to protect pedestrians.

The total rebate from (i) and (ii) would be reduced to the value of the VED itself, if this were a smaller figure. So there would never be a net return of money to drivers.

*(iii) £30 rebate for drivers who update their driving skills*

The rebate should be available to any driver who had held a full driving licence for more than five years, and who then re-took and passed the driving test again. It would be limited to a total of five years, after which the driver would need to re-sit the test again.

This rebate would also be limited to only one vehicle for which that driver is the registered keeper. It would be applicable to vehicles registered after 1 March 2001, and therefore to those who could not afford new vehicles. This rebate would not be available to drivers of vehicles attracting either of rebates (i) and (ii) above.

*A new VED scale*

VED should rise linearly with CO<sub>2</sub> emissions. The VED rate in £ should be made equal to the vehicle's emissions in gCO<sub>2</sub>/km. Thus a car emitting 85gCO<sub>2</sub>/km would attract a VED rate of £85, and a vehicle emitting 195gCO<sub>2</sub>/km would attract a VED rate of £195.

This linearly rising rate would eliminate the 'flat' portions of the current curve. It would therefore give manufacturers and purchasers a continuing incentive to reduce CO<sub>2</sub> emissions. The new scale would be higher than the existing VED rates, in order to offset the reductions available under the three new rebates discussed above.

*(b) Company Car Taxation*

*(I) Additional bands above the current 265gCO<sub>2</sub>/km*

The additional bands would provide an analogous incentive for reductions in CO<sub>2</sub> in larger vehicles. Each of these vehicles is responsible for disproportionately greater levels of emissions, speeding and road crash damage than slower and lighter vehicles. Company car drivers have a 30 to 40% greater involvement in road accidents than those driving for domestic purposes (House of Commons 2002, para 154). This is due to speed choice, mileage, and the company paying the insurance premium.

*(II) A 2% reduction in the taxation rate for company cars fitted with mandatory dynamic ISA, restricted to vehicles with CO<sub>2</sub> emissions of 145gCO<sub>2</sub>/km or less*

This change will reduce both crash damage and fuel costs for industry. Because around 50% of new cars are

company cars, it will encourage a new class of lighter, speed-limited, safer vehicles to feed through to the second-hand market.

ISA-equipped company cars would reduce average times for journeys in the UK. This will happen because there would be a significant reduction in the major congestion that is currently caused by accidents on trunk roads and motorways. There would be smoother traffic flows in built-up areas, also cutting journey times. Hence there would be a net benefit to all motorists, in addition to the benefits associated with lower insurance costs and reduced fuel consumption.

#### **4. Economic and Political Effects of the Proposals**

Above all, these proposals would significantly reduce the £17 billion lost to the UK's economy through road crashes. The measures will boost the economy, at the same time as cutting road crashes, and should be presented to the public as such. The majority of motorists already favours speed limiters. Non-motorists are likely to show an even higher approval rating for ISA, indicating high acceptability with the entire UK population.

The proposals would boost the affordability of lighter, slower vehicles, compared to larger and faster vehicles. Larger vehicles would cost more to own, both in tax and depreciation, than now. This would cut the UK's balance of trade deficit in cars very substantially. A disproportionately high number of larger, faster vehicles in Britain are imports. The balance of trade deficit in cars is around £12 billion per year – around a third of the UK's entire trade deficit, which itself is now at a record level. The society of Motor Manufacturers and Traders' figures for 2002 UK vehicle registrations help understand this point (SMMT, 2003). Imports by BMW, Audi and Mercedes accounted for more than 230,000 vehicle registrations in 2002. Jaguar, the main volume manufacturer of large, fast vehicles in the UK, sold less than 30,000 vehicles. These four manufacturers do now produce some smaller models, that are included in these total registration figures. However, the number of imported large, fast vehicles available from other overseas manufacturers has risen steeply in the last decade.

The values of the three rebates need to be set carefully in order to make the entire

package of proposals revenue neutral. This will depend on the exact mix of vehicles sold which is readily modelled.

Both the VED rebate and company car tax changes proposed are likely to lead to significantly lower vehicle insurance costs. This will amplify their attraction for private motorists, and further reassure companies of the value of these measures.

There will be a significant reduction in the UK's CO2 emissions, in line with the UK's Kyoto treaty commitments.

It is likely that the proposals would also be adopted in future outside the UK. This would make the UK a global leader in reducing environmental and social damage associated with the motor car. It would particularly help under-developed countries, where car use is growing most rapidly and where road crashes are a rapidly rising cause of death.

When the current VED scheme was designed, the 'bands' of VED were seen as being simple to administrate. However, the proposal for a linearly rising rate is far simpler to operate. A motorist seeking to buy a new car currently needs to find out the vehicle's CO2 emissions, then find out what band that corresponds to, and then find out the VED rate for that band. The new scale, with an equivalence between the CO2 emission in g/km and the VED charge in £, is a far more transparent system.

## 5. Beyond 2003

Preparations need to be made now for three more fundamental changes:

(i) Satellite monitoring of vehicles is now regularly used in industry, to boost the productivity of commercial vehicle fleets. These products can easily be used to combine a 'per-mile' road charge, Intelligent Speed Adaptation technology, and congestion charging. The Chancellor has already pencilled in 2006 for using such a system to charge lorries per mile driven. This needs to be extended to cars, to replace VED and company car tax.

(ii) In the UK, VED should be made payable every 10,000 miles, rather than annually. This would tailor VED to vehicle usage, rather than vehicle ownership. This change is a socially re-distributive measure, since lower income groups tend to drive fewer miles per year than higher income groups, so would incur the VED charge less often than now. High-mileage drivers would pay the charge more often than now. 'Per-mile' charging, with satellite monitoring, would eventually replace this charge.

(iii) The EU needs to move rapidly to keyless ignition systems, as are currently fitted to Mercedes, Nissan and Renault vehicles. However, the 'smartcard' that replaces an ignition key should also carry the driver's licence details and evidence of up-to-date insurance. This would cut drastically the total of 1.5 million uninsured drivers on the UK's roads, and the UK insurance industry's annual £600 million payout for crashes involving uninsured drivers.

The cost of this measure would be no greater than that for the provision of 'SIM' cards, which have been present for more than seven years in every mobile 'phone. Data on the driver, insurance, and last few minutes of driving actions should be stored in a 'black box', or event data recorder (EDR) in each vehicle. Such boxes are already present in many models of car with airbag occupant protection systems. They have also been fitted to police cars in London and have deterred risky driving actions and reduced crashes.

The proposals discussed here are in line with the present broad framework for vehicle taxation. However, taxation is just one way to encourage the purchase and use of vehicles which are less dangerous, energy-consuming and polluting. The 'construction and use' regulations should prohibit the use of any vehicle on the public highway capable of exceeding the national limit by more than a small amount. They should also ensure that speed limits are enforced by making mandatory the fitting of variable speed limiters to vehicles. Were we to design road vehicles from scratch today, then they

would certainly all already be fitted with speed limiters. Regulation, however, is a matter for the Department for Transport, the European Union and the courts. The present document deals with taxation, which is a matter for the Treasury and the Chancellor.

## 6. Conclusion

VED and company car taxation are currently highly imprecise forms of economic instrument. They can be made far more accurate with the changes outlined in this paper. The economic benefits and public support for such changes are clear, and present a rare opportunity for significant improvement in the UK's transport sector. In particular, reductions in speed, emissions, congestion and the number of uninsured drivers are within easy reach.

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