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The potential for further changes to the personal taxation regime to encourage modal shift. Final report for Department of the Environment, Transport and the Regions, London, June

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The Potential for Further Changes to the Personal Taxation Regime to Encourage Modal Shift

Final Report



The Open University (Lead Partner)

WS Atkins (Partner)

Napier University (Partner)

**Faculty of Technology
The Open University,
Walton Hall,
Milton Keynes
MK7 6AA**

**Tel 01908 653970
Fax 01908 654052
Email S.Potter@open.ac.uk**

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1. Abstract

This project was commissioned by the DETR to fulfil a commitment made in the 1998 white paper on integrated transport, *A New Deal for Transport: Better for Everyone*. This was to carry out research on the influence of the existing tax system with a view to seeing whether changes could be effective in promoting the use of more environmentally friendly forms of transport.

The report includes a review of the UK tax treatment of commuting benefits, which is compared to those of other countries with a different tax regime. Key points include:

- A general tax concession for all commuting trips creates negative transport and environmental impacts; it tends to stimulate car commuting and trip lengthening and is costly to the state concerned. A capped commuting concession would reduce these problems.
- In countries with a similar tax treatment of commuting as exists in the UK, targeted tax concessions upon employer-provided Travel Plan benefits have featured. This adds private sector resources to the tax concession and enhances the modal shift effect.

The most effective Travel Plan measures involve direct financial incentives and disincentives. In general the car use reduction effects of different Travel Plans is:

- Zero for information-only Travel Plans
- 5% for schemes consisting mainly of carpooling;
- 8 - 10% for those incorporating financial incentives to use alternative modes, and
- 15%+ for those that included financial disincentives to car use.

In the UK, many of the most effective measures are affected by the personal tax system.

A survey of employers developing Travel Plans was conducted, which concluded that:

- Although information and guidance may appear an appropriate response where there is a lack of understanding of the tax liability of Travel Plan measures, the use of such an approach would be ineffective without being spearheaded by actual tax reform.
- The issue of tax clashes with a company's 'tax-efficient' culture is of most significance when organisations are trying to develop their Travel Plans from their initial, fairly ineffective stages, to be more effective by the use of financial incentives and disincentives.
- There is evidence that tax does reduce the effectiveness of Travel Plan measures and that some modest and targeted reform measures could both eliminate most of the negative tax impacts and ease the development of Travel Plans within a company's dominant culture.

A double test could be adopted for considering further tax reforms to promote modal shift. One test would be an essentially quantitative evaluation of cost per car trip averted or per tonne of CO₂ emissions reduced. The second test would be a qualitative evaluation of the support a tax concession provides for other transport policy actions. This could act as an insurance policy against the Government being forced into expensive, politically embarrassing and counterproductive actions.

The research developed and analysed a set of possible taxation reform measures to effect modal shift away from single occupancy car commuting to 'greener' methods of travel. The following are a summary of the main reform proposals:

A) Minor Reforms and Informational Measures which include a £50 allowance on minor benefits to promote Travel Plan measures, a reweighting of the driver and passenger business mileage allowance to encourage better vehicle occupancy on business trips and the itemising of car parking in local business tax statements.

B) Contract Carriage of employees on Public Transport, Community Transport and by Taxi/Minicab. Employer provided buses are already tax exempt, but there would be a number of policy advantages in extending this exemption to other providers, within certain limits and safeguards.

C) A £600 per annum Allowance for 'Greener' Commuting Modes. This could be delivered via a Travel Voucher system, whereby employers could issue vouchers up to the agreed limit to their staff to pay for commuting by several greener forms of transport.

D) £600 per annum parking cash-out exemption. Rather than providing a tax allowance on specified 'green' forms of travel, an alternative way would be to permit employers to pay staff a tax-free travel allowance if they also charge for parking at the same rate. Thus employees who do not park at work, for whatever reason, will retain the allowance or a balance of it. This is also more flexible than proposal (C).

E) A General Income Tax Concession of up to £600 per annum on the cost of public transport tickets.

The proposals were the subject of interview discussions with a number of UK and overseas experts, public transport operators and employers with experience of either Travel Plans or introducing measures to assist/green the commuting of their staff. Following these interviews, the 'suite' of reforms was refined and fell into three main groupings that together could provide three stages of tax reform. The first stage involved a group of minor reforms, the second a group of additional tax incentives (Travel Vouchers and Parking cash out) and the third being mechanisms to deliver a general tax exemption for greener commuting.

Estimates were made of the cost in reduced income tax and NICs revenues to the Treasury of the various measures, their likely modal shift impacts and level of policy effectiveness. Estimates were made of the cost per tonne of CO₂ reduced by cutting single car occupancy commuter trips. An estimate of both the gross amount of CO₂ reduced was made together with a net estimate, allowing for increased public transport use associated with the policy measures. Using this indicator, the shared taxi scheme comes out well, and although this does have some policy risks (the whole idea is largely untried), it does address car use in areas where public transport is usually no real alternative to the car. Both Travel Vouchers and the Contract Carriage proposals come next in terms of cost effectiveness, with the former having a wider impact.

Travel Vouchers are preferred for integrated transport policy reasons to tax relief on travel passes and season tickets, which in any case are less cost effective. Parking cashout could be as (or more) cost effective as any of the above measures, but involves a degree of financial uncertainty. To a large extent this is because it rewards a wider range of 'green' modes (walking, cycling and teleworking) as well as public transport. This could well be a very effective policy option if well designed and promoted.

General tax relief on public transport season tickets and passes is the least focused and most costly all round. This is largely because there is no employer contribution, and were that estimated and added the figures would improve. However, it would have the most widespread impact and the total cost to the Treasury would be small compared to, for example, the stated cost of the November 2000 fuel tax and duty concessions.

	Cost per single occupancy car trip diverted	Cost per tonne of CO ₂ reduced	Tax Relief	Tax cost	Possible levels of employees offered benefit (%)
B: Contract Carriage	£140 - £700	£110-£540 gross (£140 - £700 net)	£45m	£10m	5 – 10%
C1 Travelpasses	£160 - £800	£120 - £600 gross (£160 - £800 net)	£40m - £190m	£7 - £80m	10 – 20%
C2 Shared Taxi	£90 -£450	£70 - £350 gross (£90 - £450 net)	£12.5m	£2.5m	5-10%
C3 Travel Vouchers	£140 - £700	£110 -£540 gross (£140- £700 net)	£46 - £220	£9 – c£200m	10 – 20%
D Parking Cashout	£480 - £2,400	£370 - £1,900 gross (£480 - £2,400 net)	£280 - £500m	£56 - £500m	5%
E General	£2,200	£1,700 gross (£2,200 net)	£860m	£860m	100%

In conclusion, the report highlights that Government has reached a decision point in its use of green commuting tax concessions. A decision needs to be taken as to whether tax reform is to provide a minor supporting role to other policies, or become a driver of Travel Plans, whereby green commuting benefits becoming an accepted part of company culture. We need to decide if the UK is going to go for a set of tax measures that will simply support the limited circumstances under which employers will offer direct financial benefits to ‘green’ the commuting of their staff, or whether policy is to go for a ‘big bang’ to transform attitudes among employers and result in a more widespread use of such measures.

2. Introduction and Report Structure

This project was commissioned by the DETR to fulfil a commitment made in the 1998 white paper on integrated transport, *A New Deal for Transport: Better for Everyone*. In this it was recognised that interest had been shown in the use of the taxation system to encourage the use of more environmentally friendly forms of transport, particularly through supporting Green Transport Plans (now called Travel Plans).

In recognition of the role that the taxation system could play in achieving its aims, the white paper announced that DETR intended to carry out research on the influence of the existing tax system with a view to seeing whether changes could be effective in promoting the use of more environmentally friendly forms of transport.

In the 1999 Budget, the Chancellor announced a number of changes to the benefit-in-kind regime to encourage the use of more sustainable modes of transport, by removing a number of barriers to the use of bus and cycle travel to work. The purpose of this study is to assess whether the benefit-in-kind taxation system imposes any further barriers to the use of more sustainable transport, and if so, how these barriers operate, and how significant they are. The study is also to establish the broad costs and benefits of altering any identified tax barriers.

The project was divided into two stages, as follows:

Stage 1

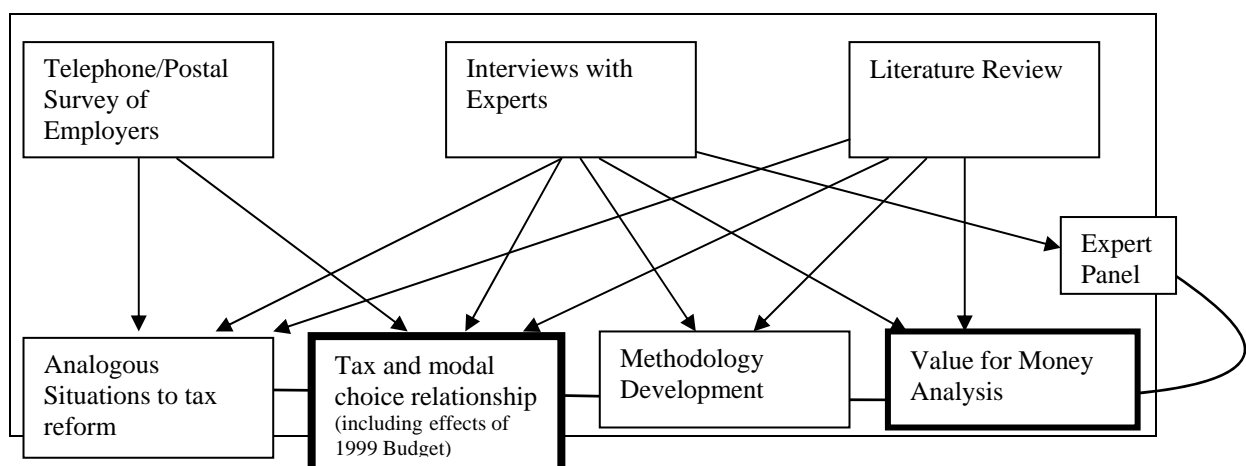
- A brief literature review of experience in the UK and overseas in using the taxation system to encouraging the use of more sustainable modes of transport whether the UK personal taxation system presents barriers to employees switching from car-based transport;
- A survey of a cross section of employers to assess whether evidence is available on if and how personal taxation is a barrier and if the 1999 Budget changes have had any impact.

Stage 2

- Developing and refining a set of potential tax reform proposals.
- Once developed, the proposals were then taken to a group of experts and employers for in-depth interviews.
- A cost-effectiveness evaluation of the proposals.

The structure of this report follows these tasks. It begins with a literature review of the issue of UK and overseas experience in using the taxation system to encourage the use of more sustainable modes of transport. Following this general review, the report focuses upon the main outputs required for Stage 1. Three activities are involved, which contribute to the four key Stage 1 outputs, together with establishing an 'Expert Panel' who would provide advice on both Stage 1 and Stage 2 work. This process is illustrated in the following diagram:

Fig 1: Stage 1 Activities and Deliverables



Two of these outputs represent the main focus of the Stage 1 work; these are the tax and modal choice relationship, to which the analogous situations work contributes. The latter involved identifying where actions have produced an effect similar to that of a personal tax concession. This is explained later in this report. The tax and modal choice relationship provides key information to feed into a value for money analysis. Methodology development has occurred in the context of these major tasks.

This report is therefore structured to first consider the tax and modal choice relationship, which includes the literature review, the employers' survey and expert interview evidence. It then considers the issue of the development of a value for money cost effectiveness analysis, drawing upon literature and discussions with experts on this subject. Conclusions are then drawn on the extent to which taxation acts as a barrier to Government policies for modal shift and the potential for cost-effective tax reform measures.

The report then moves on to the Stage 2 tasks of developing potential tax reform proposals, their refinement, cost-effectiveness evaluation and a final discussion on how such tax reform should be implemented to achieve effective transport and environmental policy results. The research was completed in January 2001 and the results of Stages 1 and 2 were reported separately to meetings at the DETR and Inland Revenue. The results were also presented to professional and research groups. This report incorporates feedback from these various events, although neither the views expressed in this report nor the estimates of the financial and environmental impacts of the policy options considered are necessarily endorsed by the Government Departments involved in this process.

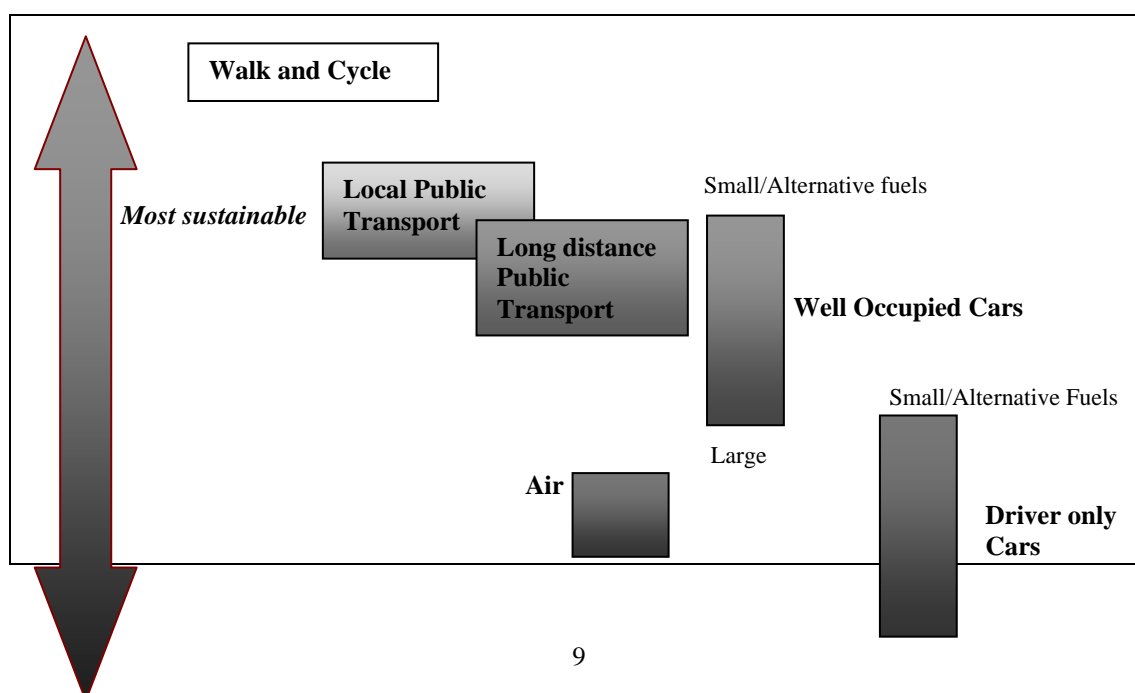
Detailed information on the design and implementation of the survey work and a report on appointments to the Expert Panel are in appendices.

3. The UK Tax Regime and Transport Policy

Transport and Sustainability

It is difficult to put a simple label upon 'sustainable' as opposed to 'unsustainable' forms of transport. Although walking and cycling can be viewed as 'sustainable', in that they consume no fossil fuels in use and have very small infrastructure needs. For motorised forms of travel the situation is more complex, with the environmental impacts dependent upon the amount and source of energy used, the distances travelled and the occupancy of the vehicles (Potter, 2000). In general there is a hierarchy of sustainability, which runs roughly as shown in Figure 2:

Figure 2: Sustainability Hierarchy of Personal Transport Modes



Least sustainable

Large

In general the aims of the UK's Integrated Transport Policy is to effect a shift from the less to more sustainable transport modes. This includes both modal shift and improvements within each mode (such as cleaner fuels and more fuel efficient designs).

Tax and Transport Policy in the UK

In the UK, the transport sector, particularly road transport, is an important source of taxation revenue. It is also one where the issue of the level of taxation has become an increasingly controversial subject, with increasingly vociferous demands being made for tax reduction. There is a real concern that these demands could lead to the Government being pushed into counterproductive tax cuts, when more useful and considered measures would have been possible. This danger was epitomised by the autumn 2000 fuel tax protests led by powerful groups intent on winning a fuel tax cut for themselves,

In recent years there have been increasingly strong linkages between the UK's fiscal system and environmental objectives and there is a growing literature on this issue. Amendments to the taxation regime have already been put in place to address environmental goals and to contribute to the Government's integrated transport strategy.

There are three major groups of transport taxation. These are upon:

- Purchase of vehicles
- Ownership of vehicles
- Use – fuel and employer-provided transport benefits

For private cars, it is possible to vary purchase taxation, where specific purchase taxes exist, by the car's environmental performance. Ownership taxes (e.g. VED) can also be varied by environmental performance, and from March 2001 this will range between £90 and £160 for new cars depending on their CO₂ emissions and the type of fuel used. The level of fuel taxation can affect both the type of cars driven (e.g. there is lower taxation on unleaded and low sulphur petrol, low sulphur diesel and 'alternative' fuels) and by the general level of taxation on motor fuels raising prices and thus influencing modal choice and the volume of travel.

The extent to which the price of fuel is an effective tool to influence modal choice has been the subject of some contention. Joseph (2000), notes that in recent years rises in traffic levels have been relatively low, despite levels of economic growth that have previously stimulated significant traffic growth. Rail traffic is at record levels and even cycle and motorcycle traffic is rising. Joseph considers the key difference between economic growth generating high car traffic growth in the past and not doing so now is high fuel prices.

It is likely that, as well as fuel prices, capacity constraints are also playing a role in slowing traffic growth. In general there is concern that a single policy measure can be ineffective and that the effects of the taxation system upon modal choice requires a more comprehensive approach. This issue is discussed in detail in The ECMT/OECD report 'Internalising the Social Costs of Transport' (1997), which advocates a synergistic mix of taxation and charging instruments, including a number of local targeted mechanisms, such as road pricing. Generally the view is taken that a carefully designed mix of various economic instruments (see Figure 3) and regulations is needed to achieve political acceptance and practicality.

Fig. 3: Vehicle, Fuel and Traffic Market-Based Incentives

	DIRECT	INDIRECT
Vehicle	Emission Fees	Tradable permits Differential vehicle taxation Tax allowance for new vehicle
Fuel		Differential fuel taxation
Traffic		Fuel taxes

Congestion charges
Parking charges
Subsidies for less polluting modes

Source: OECD, 1997 p.20.

Added to research and professional consensus of the ineffectiveness of 'add-on' adaptations to the tax system to address environmental and transport policy objectives are growing political pressures. As already noted, in the UK, transport taxation, particularly upon fuel, is an increasingly controversial subject. There is a widespread perception that the motorist is simply a convenient source of revenue and that the environmental justification of taxation is little more than a matter of presentation.

The need to move towards a more holistic, and systems-based approach in using the taxation system to promote more sustainable transport modes raises the issue of what role personal taxation measures can play in this process. Can they complement vehicle and fuel taxation to make the whole system more effective, more equitable and more politically acceptable?

4. Personal Taxation and Transport Policy

Personal taxation in the UK consists of three major elements. These are Income Tax, Employees' National Insurance Contributions (which the individual employee pays) and Employers' National Insurance Contributions (which the employer pays). Under the British taxation system, the cost of travelling between home and work is not an allowable deduction for the purposes of assessing employees Income Tax and both types of National Insurance Contributions (NICs)¹. Consequently, as Snape (1997) notes "any incentive in the form of financial assistance with the cost of travelling to work, whether provided to an employee under the terms of a commuter plan or not, has the potential for being Schedule E income for income tax purposes."

The principle that the commuting costs are not an allowable tax deduction applies to both cash payments and benefit-in-kind assistance. If a benefit is provided in cash, then the procedure is simply to add this to a person's taxable income (e.g. an allowance to buy a public transport season or payments to 'cash out' an employee's car parking space.) For non-cash travel benefits, the mechanism by which travel benefits are taxed is that the employer has to send the Revenue a separate P11D form for each individual employee, declaring the value of what benefits have been provided. Working out the value of the benefit received can vary from relatively straightforward (e.g. the value of an annual season ticket) to very complex situations. An example of the latter is that, prior to the 1999 Budget reforms, the occasional use of a works bus or a 'get you home' taxi service had to be noted for each trip, an administratively complex and sometimes contentious process.

Liability to Income Tax and NICs are technically separate processes, and until recently some travel benefits subject to Income Tax were not liable to NICs. However there has been a harmonisation of the two, with the rules for Income Tax now also applying to NICs. This section thus concentrates upon the treatment of benefits for Income Tax on the basis that this now also applies to NICs.

The term "emolument" describes all types of income and benefit-in-kind that is deemed to make up the Schedule E income upon which Income Tax is levied. Whether something counts as an emolument is therefore crucial, as is the tax value that is placed upon it. Specific statutes result in most provisions of a Travel Plan being viewed as an emolument for employees earning over £8,500 per annum (a general income threshold for all types of benefits-in-kind).

One important point is that tax is based on the cost to the employer of providing the benefit². For example, if the employer obtains a discount by undertaking a bulk purchase of travel passes, it is the discounted rate that is assessed. Equally, if an employer simply sells on the passes to employees at the discounted rate, no tax is liable on the savings that employees have compared to the normal price.

¹Full details of what employee travel does and does not qualify for income tax and NICs relief is contained in the Inland Revenue Booklet 490 *Employee Travel*.

² With the exception of company cars where the basis is list price and where employers provide employees with free fuel for company cars.

Statutory Exemptions

There are a few clearly defined statutory exemptions to the general rule that employer support to employee commuting is a taxable benefit. The main example is that car parking for commuters has for many years been specifically exempt from being viewed as an emolument (whether provided directly or paid for an employer when provided by a third party). This exemption was made for the practical reason that taxing individuals on their car parking would be a very administratively complex process. For a while, parking paid for by an employer but provided by a third party (e.g. a car parking company) was taxed, but this was viewed as inconsistent if directly provided parking was not. Administrative simplicity and fairness in the tax system are two important principles, hence both direct and indirectly provided car parking benefits were specifically exempt from liability to income tax and NICs.

Technically, until 1999 this exception related to *car* parking only, and free parking for bicycles, motorcycles or any other vehicles were emoluments. Consequently the individuals using them were liable to taxation on the commuting benefit received. In practice they have not been taxed, but in the 1999 Budget, cycle and motorcycle parking were specifically excluded.

Overall, Snape concludes that “it is difficult to view” the statutory exemption of car parking as an emolument “as anything other than fiscal encouragement for employees to use their own cars to commute” “It is certainly no deterrent to private car use in commuting.”

Interest-free Loans

A general statutory exception, which does not just relate to employer-provided transport benefits, regards company loans to staff. These can be used for any purpose, including, for example for the purchase of season tickets and bicycles, or for that matter, cars. Interest-free loans are not treated as an emolument, subject to a ‘de minimis’ limit. This limit is up to a £5,000 loan in a single tax year. The benefit amounts to the interest payments saved, which can be up to £500 (depending on the loan rates the individual might pay).

Other minor Tax Exemptions

In addition to statutory concessions are ‘Extra-Statutory Concessions’, which are agreed relaxations of the strict letter of the law addressing minor or transitory anomalies under existing legislation or where a statutory remedy would be difficult or clumsy. One extra-statutory concession is where an employer pays for an employee’s occasional late night journey home (Extra-Statutory Concessions A66, Inland Revenue, 1996). Income tax is not charged on the cost of a taxi or hired car provided solely for such occasions provided the journey is after 9pm and does not occur more than 60 times a year. The 1999 Budget extended this concession to cover car share ‘get you home’ schemes.

Extra-statutory concessions also exempt from income tax additional commuting costs paid by an employer when public transport is disrupted (A58) and employers paying for the commuting travel of severely disabled employees (A59).

‘Grey’ areas

In principle, unless specific statutory exceptions are made, all commuting travel benefits are liable to income tax. However, in practice liability on a benefit which the local tax inspector deems to be negligible or where the tax inspector has other more important priorities to attend to, may not be pursued. The practices of local tax inspectors vary according to their own priorities. They ‘run their own show’ and it is appropriate, indeed essential, for them to prioritise their investigations and work.

In consequence there may well be inconsistent, or at least differing treatment of travel benefits. Up until 1999, the treatment of works buses by local tax inspectors varied considerably. A tax inspector may have picked up works buses that had run for years and decide that the benefit was now of a magnitude that users should be taxed.

The 1999 Budget Reforms

The March 1999 Budget introduced a number of important changes to the tax treatment of Travel Plan benefits. In detail these reforms, taking effect from 6 April 1999, were that no tax would be liable on the following benefits:

- Works buses of 12 or more seats used mainly to bring employees to and from work. (This was originally set at 17 seats, but was lowered in an amendment to the Finance Act)³
- General subsidies to public bus services used substantially for commuting, provided that the employees pay the same fare as other members of the public.
- Cycling safety equipment.
- Workplace parking for bicycles and motorcycles.
- Alternative transport for car sharers to get home in exceptional circumstances, such as working late, domestic emergencies etc.

In addition to these tax concessions, there were two other measures of benefit to Travel Plans

- The tax free mileage rate for employees using their own bicycle was raised to 12p per mile, and if their employer provides no payment, employees can claim tax relief of 12p per mile⁴.
- Employees who use their own bicycle for business travel can claim capital allowances on a proportion of the cost of a bicycle.

Shortly afterwards, the government issued guidance encouraging employers to adopt Travel Plans (DETR, 1999).

These concessions leave within the tax net a number of direct incentives and possible disincentives that feature in some Travel Plans. This particularly applies to any subsidies to public transport tickets for staff, to cash incentives to take part in a Travel Plan, and to VAT on employee car parking. Thus, if employers provide free parking this is tax free, if they provide a public transport pass, the employee is taxed upon this as benefit-in-kind.

Travel Plans and Employers NICs

From April 2000, the level of taxation on taxable Travel Plan benefits increased significantly. As noted above, there has been a harmonisation of the rules governing Income Tax and National Insurance Contributions (NICs). Up until April 2000, NICs were not chargeable on all travel benefits in kind that attracted Income Tax (although Class 1A NICs paid by employers has been chargeable on company cars since 1991). From April 1999 non-cash vouchers were brought into a full Class 1 NICs charge. From April 2000, in addition to Income Tax, employer Class 1A NICs at 12.2% became chargeable on all benefits in kind not already subject to NICs. The Class 1A NICs rate is being marginally reduced to 11.9% in 2001/2 to offset the new climate change levy⁵.

The overall result is that the standard rate taxpayer would pay 22% on a public transport benefit paid either as a cash benefit or in form of non-cash voucher, plus 10% NICs if the employee is contracted in to the State Earnings Related Pension Scheme (SERPS) and 8.4% if the employee is contracted out of SERPS). Their employer would also have to pay 12.2% NICs.

The use of the Taxation System in Other Countries to encourage Modal Shift

The tax treatment of commuting expenses and employer support for the work journey varies between countries, and a comprehensive review of this issue for EU member states features in Van den Branden, 2000. This study highlights the contrast between countries, such as the UK, Austria, Greece, Ireland, Italy, Portugal and Spain, who view commuting as a personal expense and others, including Belgium, Denmark, Finland, France, Germany, Luxembourg and The Netherlands, that view it as a tax deductible expense. With respect to transport and environmental policies, there are advantages and disadvantages with both types of system.

³ This seat limit is planned to be further cut to 9 for implementation in 2002.

⁴ Raise to 20p in 2001

⁵ The reduction in employers' NICs to balance the introduction of the Climate Change Levy is a good example of replacing a tax on employment with one on environmental impacts.

The EU research concludes that most taxation regimes provide contradictory signals regarding 'greener' forms of transport. However, some countries that have started from both standpoints have recently sought to use elements of their personal taxation system to encourage the use of more sustainable transport modes. Major examples of these are detailed below.

In the countries where commuting is a tax deductible expense, there have been moves (some significant) to increase general benefits for more sustainable modes relative to less sustainable methods of travel. In the countries where commuting has not been a deductible expense, a different approach is evident. The concept of introducing a general tax concession for all commuting by more sustainable modes has not featured. Instead there have been far more targeted measures upon employer-provided support. These include the transit, vanpooling and parking cashout measures in the USA, similar proposal in Canada and tax exemption for employer provided public transport passes in Ireland. Discussions in Austria have also focused upon tax concessions for employer-provided support.

This approach by countries with a similar tax treatment of commuting to that of the UK supports the concept that, although some form of general tax concession for more sustainable modes should be examined, particular consideration should be given to how changes to the tax regime can support the development of Travel Plans.

Examples of Tax Measures outside the UK to Encourage Modal Shift

In our earlier work on this issue (Potter, Rye and Smith, 1998), we identified three taxation regimes for detailed study as representing contrasting approaches that highlight well the transport and fiscal policy issues concerned. These studies were of Germany, the Netherlands and the USA. We have updated these studies, noting significant developments in the USA and the Netherlands. We have also added information on Switzerland and Norway, and a study of Ireland where tax concessions for employer support to the cost of commuting by public transport have recently been introduced.

Germany

Smith, 1995, provides a summary of the personal tax situation regarding commuting costs in Germany. Unlike in the UK, in Germany there is tax relief for commuting to work. Individuals can claim either:

- a) A lump sum deduction, or
- b) A deduction based on the actual cost of public transport or a Kilometre rate for a car.

Until 1988, the car rate was DM 0.36 per Km (19p per mile), which was higher than marginal costs, but lower than total costs (including capital etc.). In 1990 this was increased to DM 0.50 per Km (27p per mile), but at the same time fuel taxes were raised which roughly counterbalanced the increase. It is now (2000) DM 0.70 per Km (38p per mile). From 1992, there has been a special tax exemption for employer-provided 'Job Tickets' for use on public transport in some areas of Germany.

There is a growing acceptance that, despite the special 'Work Ticket' provision, the German tax concessions on commuting costs encourages long distance commuting and stimulates work journeys by car rather than public transport. This is partially due to car users perceiving the costs of driving as fuel costs alone. Thus they feel that they can 'make money' on the tax concessions over and above their expenditure if they drive to work, which they cannot do if they use public transport.

Tax relief on commuting costs is long established and Smith noted that it costs the German Government (depending on the calculation method used) between DM1.8 and 4 billion (£600 - £1,350 million) in lost revenue. Overall, Germany appears to suffer the worst of both worlds; their Treasury is making a major tax concession on commuting costs and the transport and environmental impacts of this fiscal measure are entirely negative.

To update the German situation, Michael Glotz-Richter of the Land of Bremen Transport and Environment Department and Andreas Pastowski of the Wuppertal Institute were contacted. Michael Glotz-Richter indicated that the situation in Germany regarding the deduction of commuting expenses from income tax ("Kilometerpauschale") has not changed in recent years. However, there is currently some discussion to alter this situation. However, the concept of reform is a highly sensitive political issue in Germany. On one hand, there is a desire to increase the car deduction rate due to the increase in fuel prices; on the other, there is a desire to change the tax deduction to a general 'distance-deduction' without regard to the mode of transport used. At present, most people declare that they

commuting by car because it is more tax advantageous to do so, and they wish to retain this tax advantage.

Andreas Pastowski agreed with the above, but viewed the tax situation in Germany as having become more complicated. In particular he stressed that high marginal tax payers particularly benefited by commuting by car for a long distance. Overall he concluded that the basic situation encouraged either declaring car commuting or actually car commuting, depending upon the amount of evidence that was required by the tax office.

Switzerland and Norway

In Switzerland, commuting is a tax-deductible expense, but the tax rules are designed to provide an incentive for travel by public transport rather than car. For travelling by public transport, the situation is as in Germany in that the actual costs may be set against tax. There also exist 'standard deductions' for car users, but their use is restricted. The baseline position is that individuals, whether they use car or public transport, can only deduct the cost for the use of public transport. A case has to be made (e.g. the taxpayer lives too far from a station, their work requires them to travel at unsuitable times or they have a physical handicap) to claim a standard car deduction.

As part of a planned ecological tax reform, the Swiss government plans "to examine more deeply the tax treatment of commuting and business transport expenses, and in particular to focus on the deduction of costs for car commuting"⁶.

Norway operates a similar regime to Switzerland, with a deduction for commuting expenses of 1.40 NOK (11p) per kilometre irrespective of means of transport⁷. In addition, car users can claim ferry and road tolls; if air travel is used for weekly commuting the actual costs can be deducted. However, if commuting costs are only deductible if they exceed 7,000 NOK (£540); this equates to a journey to work distance of about 15km before a commuting becomes tax deductible. This minimum threshold provides an incentive for employees to live further from work in order to cut their tax liability.

Netherlands

General principles of taxation in the Netherlands

In the Netherlands, the general principles of fiscal policy are similar to those of many other countries: to lower tax rates; to broaden and strengthen the tax base; to green taxes to promote sustainable economic growth; and to simplify the tax system. Taxation and travel planning (*vervoermanagement* in the Netherlands) are obviously closely related to the second two of these principles. Equity is also an important consideration.

The following sections relate to the existing taxation status of employer-provided commute benefits and the individual employee's ability to write off their commuting costs. Reading this section will indicate to the astute reader that the various incremental changes over time have resulted in a very complicated system. This year the Netherlands Ministry of Finance has announced a radical overhaul of the commuting benefits system, partly to simplify the system, and partly to further promote the use of alternative modes.

Tax Treatment of Commuting

The taxation of commuting travel in the Netherlands centres around two crucial benefits. These are:

- 1) the *reiskostenvergoeding* (reimbursement from the employer of an employee's commute costs, normally paid only to those who travel more than 10 km one way); and
- 2) the *reiskostenforfait*, the allowance for travel costs paid by the employer to the employee which he/she can then offset against tax.

The degree to which the *reiskostenvergoeding* is taxable, and the size of the *reiskostenforfait*, both vary depending on the mode used. In addition, if no *reiskostenvergoeding* is paid (more common in public sector organisations), then the employee is able to write off a portion of their commuting costs against

⁶ Personal correspondence with G. Steinmann, Office for Legislation Federal Direct Tax.

⁷ Personal correspondence with Merete Duhs Marstrander, Norwegian Royal Ministry of Finance and Customs

tax. The precise amount is, again, related to the mode used. In general, the tax regulations have been changed in order to favour the use of more sustainable modes as part of the Government's general aim of promoting the adoption of Travel Plans amongst all Dutch employers with more than 50 employees. The following details these arrangements.

Bicycles

If the employer gives an employee a bicycle worth less than 1,500 Guilders (£455⁸), the employee is liable to tax only on a fixed amount of 150 Guilders (£45). The employer may also provide the employee with accessories such as insurance, clothing, lighting etc. up to a maximum of 550 Guilders (£172). Such benefits may only be provided tax-free once every three years.

If the employer loans a bicycle to the employee there is no tax on the benefit of the private use of the bicycle as long as the employee commutes on it for at least half the time.

If the employer pays the employee's commuting costs (*reiskostenvergoeding*) for the using their own bicycle to travel to work, this is tax-free for distances of more than 10 km, but not for shorter distances. For employees who cycle more than 10 km, a tax-free *reiskostenvergoeding* can also be paid for the use of public transport on bad weather days as long as, in total, the employee cycles for more than half the year. There is a favourable taxation regime for what is known as "bicycle projects", where the employer buys a bicycle for an employee and then recoups the cost through salary reductions. This is particularly favourable for employers who pay the commuting costs for journey to work distances of less than 10 km. It has been shown to increase the proportion of staff cycling to work at employers such as CITO in Arnhem; Heemstede Ziekenhuis, Haarlem; and FORTIS in Utrecht.

Company cars

Company cars are assumed to have a value to the private individual of 20% of the catalogue price, per year (24% if commuting distance one-way is more than 30 km). This sum is added to the employee's taxable income. There is no tax-free employer contribution to commuting costs (*reiskostenvergoeding*) and no commuting costs allowance they can offset against tax (*reiskostenforfait*), unless the employee is part of a registered carpool arrangement (see below).

The private use of a company car is treated as a taxable benefit if they have over 1,000Km private travel per year. However, tax is reduced if the user pays their employer for private or commuting travel. As in the UK, car parking provided by the employer is not regarded as a taxable benefit.

Works buses

If a works bus is provided free of charge to the employee, there is no tax liability for the employee and the employer can deduct VAT and write off the running costs against Corporation Tax. If the employee makes a contribution to the cost of the works bus, this contribution is not deductible until it reaches 70% of the value of the *reiskostenforfait* applicable to that employee.

Public transport

The tax regulations related to public transport have been changed most significantly to stimulate the use of this mode by employers and employees. Most critically, there is no minimum distance which an employee must commute by public transport before they can write off their travel costs or before which *reiskostenvergoeding* becomes tax-free.

If a season ticket specific to the employee's trip from home to work is provided by the employer, this is completely tax-free to the employee, even if she/he commutes only infrequently by public transport. If a non-route-specific ticket (e.g. a Travelcard) is provided, tax is payable on the private use (as opposed to commuting) value of the ticket. This value is 120 Guilders (£36) per year for second class and 180 (£55) for first class for people who commute at least half the time by public transport. For infrequent users, there is a higher personal tax liability.

If the employer pays an employee's public transport commuting costs, and administers the purchase and distribution of the ticket on behalf of the employee, these benefits are entirely tax-free to the

⁸ At £1=3.3 Guilders

employee and in addition it is possible for the employer to pay a further 200 guilders per month (£61) to the employee tax free to cover costs such as secure cycle parking at the station. If the employee pays his/her own travel costs by public transport, the tax-free *reiskostenvergoeding* is limited to 270 Guilders (£82) per month. If the employee pays their own public transport costs, they can write off between 1,140 Guilders (£345) for a 10-20km. Commute, and 5600 Guilders (£1,700) for commuting of more than 80 kilometres per year.

Carpooling

Since January 1998 there have been two possible ways for employees to qualify for fiscal benefits for car-pooling. The first involves all employees in a carpool signing up with each other and the employer to a car-pool contract, and car-pooling for more than half the time. The commuting distance over which they drive together must be more than 15 km. They are then entitled to a tax-free *reiskostenvergoeding* in addition to that for lone drivers (between 520 and 1,040 Guilders (£158 - 315) per employee per year, depending on distance driven). The second option is for the driver only to receive a tax-free *reiskostenvergoeding* of 0.60 Guilders/km (18p) for any distance over 10 km. In this case, other members of the carpool team are not entitled to any *reiskostenvergoeding* or *reiskostenforfait*. Neither of these exemptions is applicable to vanpools.

Telecommuting

Over a five year period, the employer can make a tax-free 4,000 Guilder (£1,212) contribution to the employee to cover costs of setting up a home office. This is on the condition that the office is used at least once per week in lieu of a normal commute; and that there is a written contract between employer and employee.

Tax efficient saving

Employees in the Netherlands are encouraged to save through tax-efficient schemes with their employers. Companies who wish to provide employees with a tax-free bonus for using alternative modes may do so by paying into the scheme on behalf of the relevant employees, up to a maximum of 1315 Guilders (£400) per year.

Changes for 2001

In order to simplify this complex system, to support environmentally friendly tax reforms and to lower the general level of tax, some radical changes are being made to the system of tax and commuting benefits in the Netherlands, to come into effect on January 1st 2001. In summary, these are:

- The benefits for public transport and carpool commuters will remain as now.
- For drivers, the *reiskostenforfait* and the right to write off commuting costs will be completely abolished. It is estimated that this will net the Treasury some 500 million Guilders (£150m).
- For cyclists, the distance-related *reiskostenforfait* will be replaced by a flat sum of 750 Guilders per year (£227) which they will be able to write off.

The previous objection to the abolition of the *reiskostenforfait* for drivers is that it would seriously disadvantage those who receive it who live some distance from work, and that the increased costs would be demanded by Trades Unions in the form of higher *reiskostenvergoeding* from employers. However, the change to the system of commuting benefits is part of a wider reform to the tax system where personal allowances will be increased. This will cost the Treasury some 6 billion Guilders per year, but it is equitable, since all employees will enjoy it regardless of mode, and it has no direct influence on choice of mode of transport for the trip to work.

It is estimated that the abolition of *reiskostenforfait* will lead to a short term reduction in CO₂ emissions of 0.10 Megatonnes per year in the long term (15-20 years) and 0.05 Megatons in the short term (0-10 years). This relatively small effect is because *reiskostenforfait* is worth only 29 Guilders per month to those who receive it; furthermore cross-elasticities are such that this is not enough to cause major modal shift, and also because commuting traffic makes up only 25% of the total traffic.

Overall, the taxation system in the Netherlands has started from a similar position to Germany, but has introduced a series of reforms across a wide range of taxation specifically designed to favour 'greener' modes of travel. Thus Travel Plan measures introduced by employers are exempt from negative tax

impacts, or are actually enhanced by the taxation system. Following an initial round of tax reforms, the Dutch government has realised that, rather than adding on transport and environmental considerations to adapt existing tax measures, they needed to be a core criteria in a major reform of the whole tax system itself. This evolution in tax policy should be noted.

The USA

In contrast to the blanket tax concession of Germany and the wide range of generally pro-public transport and bicycle measures in the Netherlands, in the USA, tax concessions are specifically for company Travel Plan measures. This began in the mid 1980s with further enhancements and developments added over time to produce a raft of targeted exemptions

Policy in the USA reflects the research conclusion that “direct financial incentives or subsidies are a key element of successful programs” to reduce single car occupancy travel to work. This conclusion is based upon the monitoring of the effectiveness of various Travel Plan measures (Paaswell, 1991, 1999; Comsis Corporation, 1995; Ligtermoet, 1998). Such empirical studies have been incorporated into cost-effectiveness evaluations of USA schemes, which are considered later in this report.

A summary of the history of Federal commuter benefits in the US is shown in the table below.

Figure 4 : Evolution of Federal Commuter Benefits in the United States

1984: Deficit Reduction Act - \$15 per month tax exemption for transit users, with restrictions
1991: IRS administrative action - increased monthly transit cap to \$21
1993: National Energy Policy Act - Added Internal Revenue Code, Section 132(f) "Qualified Transportation Fringe"
- Vanpool expenses also qualified
- Transit/Vanpool benefits – to \$60 per month
- Qualified Parking - \$155 per month
1996: IRS indexing of benefits
- Transit/Vanpool benefits - \$65 per month
- Qualified Parking - \$165 per month
1997: Taxpayer Relief Act – taxable payments in lieu of employer provided parking permitted
1998: Transportation Equity Act For the 21 st Century (TEA-21)
- Employee can elect to buy transit fares with pre-tax compensation
- Tax-free transit benefit increases to \$100/month after 2001

Source: Adapted from: *New Federal Commute Benefits With The TransitChek Program*, a presentation by the TransitCenter.

The provisions of the Energy Policy Act forms part of the Internal Revenue Code. Under section 132(f) of this, employers can provide each employee commuting on transit a benefit up to an initial limit of \$60 per month (\$720 [£480⁹] per year) which is tax deductible to the employer and tax free to the employee. The Energy Policy Act included adjusting the limits with inflation, rounded to multiples of \$5.

The fact that employees and employers share the benefit is a key factor that has increased growth in the take up of the benefit from 2% per month prior to 1998 to 10% per month now (IBI Group, 2000). Employers do not *have* to contribute anything to the cost of their employees' public transport costs but employees still benefit; certain employers do limit their involvement in this way, whilst others make a (tax-free) contribution on behalf of their staff.

The concession (up to the 'de minimis' limit) covers:

- (A) Transportation in a commuter highway vehicle if such transportation is in connection with travel between the employee's residence and place of employment.
- (B) Any transit pass.
- (C) Qualified parking.”

⁹ At £1 = \$1.50

A 'commuter highway vehicle' has to seat at least 6 adults and at least 80% of the mileage is for journeys to and from work. This covers schemes involving private buspools, shuttles, subscription bus services and vanpool leasing.

The 'qualified parking' is for the commuter highway vehicles only, up to a value of \$155 (£100).

The Taxpayer Relief Act of 1997 and the 1998 Transportation Equity Act for the 21st Century have extended these measures to the cashing out of employer-provided parking up to the \$65 a month ceiling. This Act also provided for increasing the nontaxable transit and vanpool benefit ceiling to \$100 a month from January 1st 2002, with the resumption of increases indexed to inflation. In addition, parking 'cash out' payments are now tax exempt. This is part of the move in the USA away from regulations requiring employers to introduce Travel Plans, to an approach encouraging the voluntary take-up of Travel Plans (as is the policy in the UK). Targeted tax relief to the treatment of the most effective Travel Plan measures is a key part of this. The benefits are summarised in Figure 5.

Figure 5: Summary of Tax Benefits for Employer TDM Measures in the United States

Alternative Mode of Transportation	Incentive	Tax Implications
Transit ¹	Up to \$65/month, \$780[£520] /year for transit expenses (increases to \$100/month after 2001)	Employers give their employees up to \$65/month to commute via transit; get a tax deduction and save over providing same value in gross income or employers allow employees to use pre-tax income to pay for transit and employers save on payroll tax (at least 7.65% savings) or A combination of both up to statutory limits
Vanpool ¹	Up to \$65/month, \$780[£520] /year for vanpool expenses (increases to \$100/month after 2001)	Employers give their employees up to \$65/month to commute via vanpool; get a tax deduction and save over providing same value in gross income or Employers allow employees to use pre-tax income to pay for vanpooling and employers save on payroll tax (at least 7.65% savings) or A combination of both up to statutory limits
Qualified Parking ¹	Up to \$175/month, \$2,100[£1,400]/year, for parking at or near an employer's worksite, or at a facility from which employee commutes via transit, vanpool, or carpool	Employers give their employees up to \$175/month for qualified parking; get a tax deduction and save over providing same value in gross income or Employers allow employees to use pre-tax income to pay for qualified parking and employers save on payroll tax (at least 7.65% savings) or A combination of both up to statutory limits

¹ Vanpool or Transit Benefits can be provided in addition to Qualified Parking for a total benefit of up to \$240[£160]/month or \$2,880[£1,900]/year.

SOURCE: Adapted from Association for Commuter Transportation, *Money Saving Tools, Explanation of the Federal Tax Advantages for Employer-Provided Transportation Benefits*, from the TDM Tool Kit, 1998.

Appendix 3 contains further details of current USA tax concessions for Travel Plan measures.

The USA Travel Plan Industry

In the USA, the provision of transit benefits has come to be organised via a new industry that has built up around Travel Plan services. An example is the *TransitCheck* scheme, used in New York and elsewhere in the USA. Employers purchase \$15 and \$30 vouchers from the New York TransitCentre,

an alliance of transit operators that administers the program for the tri-state region. The vouchers can then be distributed to employees (Paaswell, 1994).

Litman (1997) notes that around 25% of the TransitCheck recipients previously commuted by car alone. A small amount (about 4%) were previously car passengers and about 2% previously walked. In the USA context he felt this was a good result. Companies tended to market TransitChecks as staff benefits, not as part of a transport programme. He felt that a higher uptake by car drivers could be expected in places with a better public transport infrastructure and where companies linked TransitChecks to travel plans.

Ireland

In Ireland, commuting is not a tax deductible expense, but from the tax year 1999/2000 a specific concession for employer-provided public transport support was made. Under the 1999 Finance Act benefits in kind by way of a monthly or annual bus or train pass are exempt from consideration as benefit in kind. This is subject to an annual limit of £I 696 (about £580). As in the USA, this tax concession has provided public transport operators to promote ticketing products. In the Dublin area publicity material under the title 'Easi-Travel Plan' to promoted to employers as a new 'Tax efficient incentive for your staff'. In addition to the tax efficiency, there is a 12% discount for employer purchase of travel passes for their staff. The annual allowance is sufficient to cover all types of public transport tickets in the Dublin area (a combined bus/rail ticket for the entire area costs £I 525).

Other Countries' Tax Regimes – Key Points

- A general tax concession for all commuting trips creates negative transport and environmental impacts; it tends to stimulate car commuting and trip lengthening and is costly to the state concerned.
- It is possible to focus a general tax concession upon public transport commuting trips, but this can still contribute to trip lengthening.
- It can be politically difficult to reduce car commuting benefits, once these are granted.
- The Dutch example of simplifying the commuting concession to more sustainable modes as part of a general tax reduction strategy indicates an advanced level of fiscal/environmental policy integration. As part of such a strategy, the concept of tax loss becomes irrelevant as the aim of policy is to target tax cuts.
- In countries with a similar tax treatment of commuting to the UK, targeted tax concessions upon employer-provided Travel Plan benefits have featured. These have been intended to support the development of effective Travel Plans and stimulate the use of particularly effective measures in influencing modal shift.
- An approach to support Travel Plans could also be incorporated into an advanced fiscal/environmental strategy whereby tax reductions are targeted to support policy objectives. To date, these two 'best practices' have not been combined.

5. The Modal Choice Effect of a General Tax Concession

Introduction

Following the review of the tax treatment of commuting and employer-provided support to commuting in other countries, the question of the impacts of the UK tax regime on modal choice needs consideration. Furthermore, there needs to be an evaluation of the UK adopting the sorts of measures used elsewhere, such as a general tax concession for public transport commuting (either unlimited or with a limit) or a concession upon employer-provided benefits in kind for more sustainable commuting

modes. This section, through to section 7 draws upon existing literature, data and surveys results, with this issue further explored in our own UK employers' survey in section 8.

It should also be noted that this study assumes that, as it is Government policy to effect a peak-hour modal shift from the private car to public transport, that improvements to capacity, quality and reliability would be provided (e.g. by investment and regulatory policies). Tax measures are one way to support such other policies, and so ensure that the potential for modal shift that capacity enhancement provides becomes a reality. It is recognised that quality and reliability improvements need to go hand-in-hand with pricing measures (such as tax relief) and that both are needed for an effective integrated transport policy.

General Tax Concession

As tax relief on commuting by public transport would effectively reduce fares, then the well-documented area of fare elasticities can be used to either evaluate a general tax concession or a more targeted measure. Elasticity represents the proportionate change in quantity (e.g. demand) that follows from a proportionate change in another (e.g. cost). Thus an elasticity value of +0.4, means that for a 10% increase in service quality (however defined), 4% more passengers would be attracted.

However, as will be noted later, the fact that a tax concession has an indirect effect upon fares is an important consideration.

While the calculation and use of elasticity values can provide a fairly accurate assessment of how a wide variety of factors (such as income levels, car ownership, settlement size etc.), influences the price-public transport demand relationship, in this case only a relatively simple series of figures are used. This is because it is general tax concessions that are under consideration. The information used will consider general national results, the 'asymmetry' aspect, and results specific to commuters and the journey to work. It will also look at the elasticity values of various ticket types, should tax relief only on season tickets, for example, be considered.

Although the tax treatment of more sustainable modes other than public transport (walking, cycling) is important, elasticity data is only readily available on public transport.

General public transport price elasticities

Between the 1950s and 1977, Bly PH (in TRRL, 1977) found that all over the world, time series, before and after and cross-sectional studies have demonstrated an approximate price elasticity value of -0.3, and also a suggested range of between -0.1 and -0.6 should be used to allow for differing passenger types and situations. In their study of the effect of tax relief on London Transport season tickets, Osman and Hobbs (1997) used an elasticity figure of -0.28, which falls about midway in Bly's range.

Goodwin (1992), has since calculated that while -0.3 was sensible in the short term (the first year), after four years or so a figure of -0.55 would be reasonable, and after ten years this would be around -0.65. This growing effect allows for longer-term adjustments in travel behaviour to take effect.

Finally, the most recent review of price elasticities for public transport in the UK situation, in Dargay and Hanly (1999), suggests that fare elasticity for Great Britain as a whole is about -0.40 (+/- 0.1) in the short term, and -0.9 (+/-0.1) over the long term. This study also reported evidence suggesting that long-term values were at least twice and possibly three times those of short term values, and that the total response time takes about seven years.

To be a useful proxy to tax relief, such results would need to be true for a *reduction* in fares, as well as for an increase (the 'asymmetry' aspect). In general, Dargay and Hanly (1999) found that demand is slightly more sensitive to rising fares than falling fares (-0.3 in the short run and -0.6 in the long term), although the difference is marginal and not statistically significant.

Public transport elasticity values by time of day, journey purpose, and type of person

In his study of bus fare elasticity, Webster (in TRRL, 1977) noted that for off-peak, weekend, non-captive, short trips (under one kilometre) and possibly long trips (over 20km), bus users have twice the

elasticity values as peak, weekday, captive and medium distance trip users respectively. He also noted that lower income users are more elastic than better off passengers. Preston's work (1998), showed early morning and peak elasticity values from bus operations in three English Metropolitan areas, to be -0.16 - -0.20 in the short term, and -0.24 - -0.31 in the long run. This compared to an 'all period' long run value of -0.78.

Worldwide, Oum et al (1992) also showed that off-peak traffic is more sensitive than peak traffic. This is expected as peak period trips (commuting and education) are not as easy to forgo as off-peak leisure or shopping trips, and may also be less easy to make by car due to worse congestion and/or no or prohibitively expensive parking. This is confirmed in Fowkes et al (1992), which determined business and commuting trips at -0.3, and leisure trips at -0.6.

Stated Preference findings reported in Halcrow Fox (1993) for public transport in London, found that for the home-work trip, low income people had lower elasticities than medium or high income people. This contrasts to Webster's earlier work on buses, but may be a factor of the research method (stated rather than revealed preference) and the nature of the London public transport market (which includes tube and train as well as buses). In detail, the Halcrow Fox study indicated low income elasticities of -0.2 - -0.4, medium income of -0.3 - -0.4, and higher income people of -0.4 - -0.5. An agreement with other studies was that commuting was less elastic than for home-other trips.

Ticket type

Ticket types have also been found to influence elasticity values. A study by Warwickshire County Council Engineers Department and the Midland Red Bus Company reported in TRRL (1980), found that elasticity values for single fares were -0.32 +/- 0.05, return fares -0.26 +/- 0.05 and season tickets -0.10 +/- 0.05. Evidence from Stockholm's public transport system (Tegner et al, 1998), showed monthly cards were the least sensitive (-0.35), while cash coupons were the most sensitive. These findings though, seem to be contradicted in Preston (1998), who found elasticities for cash fares to be -0.28 +/- 0.12, and pre-paid tickets of -0.74 +/- 0.39.

Dargay and Hanly (1999) conclude that trips by individual fare types are more price-sensitive than total trips, reflecting the substitution between fare options. However, the wide variation between different ticket types means that no general conclusions can be drawn.

The effect of bus fares on car travel

Dargay and Hanly (1999) reports that while empirical evidence is limited, bus (as opposed to rail) fares appear to have negligible effects on car travel, but the effects of motoring costs on bus travel, are slightly greater.

Reinforcement of Modal Shift by Employers

Were there to be a public transport tax concession, employers might offer this as a staff benefit. This would increase the impact of a state tax concession by the amount the employer adds. A private sector 'leverage' effect could thus triple the tax concession price effect and so further increase modal shift. On the basis of the above considerations of price elasticity, among employees offered such a benefit a 15 - 20% rise in public transport commuting might be expected. This issue is considered in further detail later in this report.

Summary

As a rule, the commuter/peak period public transport market is less price elastic than the off-peak, especially where a car is available. It would also seem from the literature reviewed above that season tickets appear to be less sensitive to price than single tickets, and thus only targeting the tax relief on season tickets may not deliver as much of a modal shift as a more flexible measure (e.g the Travel Voucher concept considered later in this report). Added to this, the asymmetry data (albeit limited) suggests that even less of a modal shift may be expected, as fare cuts have not tended to win back as many passengers as a fare rise of the same size would have lost. However, there is the important evidence that long-term elasticity is at least twice as great as short-term.

Because of all of these factors, there are difficulties in choosing a figure that is representative of the effect of removing tax from public transport commuting costs. It would also be inappropriate to subdivide elasticities by income group, given the contradictory information on this issue. In addition, there is the matter of short and long term elasticity, with something like a doubling of the effect over a 10 year period.

A reasonable overall assumption though, may be a short-term elasticity of between 0.2 and 0.3 - i.e. that a 10% cut in public transport fares would deliver a 2-3% increase in public transport patronage. Thus, for a combine tax and NICs rate of 30%, this cut in public transport fares might be expected to produce an increase in use of around 6 to 9%. This figure is viewed as being a reasonably minimum estimate, and the effect could well be higher (12 – 18%) after 7 – 10 years. It would certainly be higher where employers used the tax concession to offer public transport benefits to their staff.

A key assumption that has been made up to this point is that a tax concessions would have a simple fares reduction effect. However, the nature of the tax system means that market is even less perfect because of way tax (and tax concessions) impact upon individuals. This could either increase or decrease the effect of tax. If a person declares a benefit or receives a concession through their tax form, this decision point can have a major influence.

Tax Cost of a General Concession on Season Tickets¹⁰

Season ticket and Travelcard expenditure provides a set of information around which to make estimates of the cost of any public transport tax concession. According to the Family Expenditure Survey 1998/99, about £1.9 billion was spent in the UK on public transport season tickets (see table below).

Figure 6: Household Spending on Season Tickets

	Average weekly household spending (£)	Estimated total annual household spending (£ million)
Bus and coach	0.20	260
Rail and tube	0.70	900
Combined fares	0.60	770
All season tickets	1.50	1,920

Source: Family Expenditure Survey 1998/99

Assuming unlimited tax and NICs relief¹¹ and that everyone who currently has a season ticket is able to take full advantage, the costs of tax relief to present users at an average of 30 per cent would be about £576 million a year. To this needs to be added about 12% employer NICs, another £230m, making £806m in total. This is an upper estimate, since not all season ticket users would be likely to be able take advantage of tax relief. For example, the information on household spending on season tickets includes those purchased by non-tax payers, such as children and students. In consequence the total tax relief would be somewhat less than £800m.

There would also be extra expenditure on season tickets arising from the introduction of a tax exemption – not only from modal shift but also from some people commuting further using season tickets than otherwise would have been the case. If it is also assumed that tax/NICs relief at 30 per cent would result in at least a 7 per cent increase in season ticket purchase (about the maximum that our elasticity studies would suggest), then another £134m in season ticket purchases would be generated,

¹⁰ Note: Project Advisor, Tony Grayling, of the IPPR, has assisted the research team in providing information and initial analysis for this section.

¹¹ Currently Income Tax in the UK is charged in three bands of 10%, 22% and 40%, depending upon income level. Any benefits in kind are charged at the appropriate rate. The 10% band is relatively small, so an average of 24% is taken as appropriate for these calculations. Employee NICs are subject to a ceiling and a rate of 6% is assumed. This makes a combined total of 30%.

Employers NICs are 12.2% in 2000/01, reducing to 11.9% from 2001/02.

which would attract another £56m in tax and NICs relief. Allowing for the approximate nature of these calculations, the ceiling on NICs contributions and the use of season tickets by non-taxpayers, a figure of £650 - 700m per annum would seem appropriate.

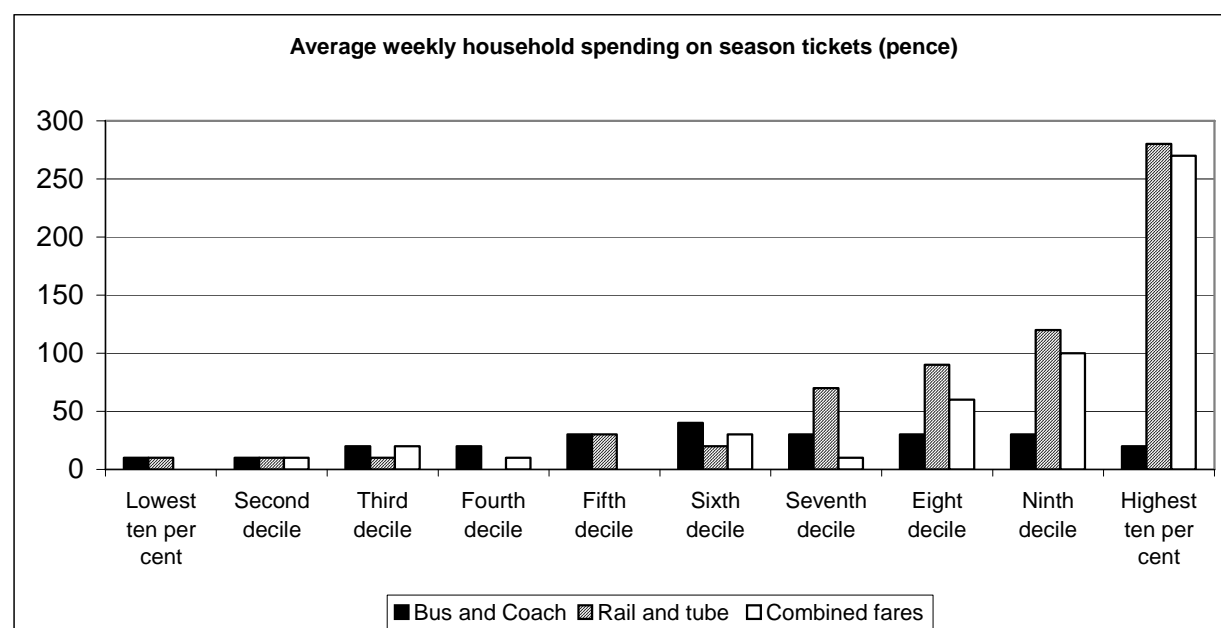
By way of comparison to the above figures, Osmon and Hobbs (1997) estimated the impact of tax relief on London Transport season tickets. They used a 20% tax relief rate (no NICs), producing an effective fares reduction of 4.9% across all London Transport's markets and generating an estimated demand increase of 1.4% (an elasticity of 0.28). It is interesting to note that this study suggested that the interaction of the tax relief with the market would cut the effective fares reduction. They estimated that tax relief would be £56m on monthly and annual season tickets. Correcting Osmon and Hobbs' figure to allow for NICs would produce a tax relief figure of about £120m. Thus London Transport services would represent nearly a fifth of the FES-based estimate for the tax loss across the country as a whole. This figure feels about right, given that London represents such a large commuting market.

Equity and Transport Issues

Information from the Family Expenditure Survey indicates that unlimited tax relief on season tickets would be highly regressive, particularly because people in upper income groups are more likely to be in a position to take advantage of tax relief. Households in the top ten per cent income bracket spend on average about £5.70 per week on public transport season tickets compared with about 20p by the lowest income group (See Figure 7, below).

Expenditure on bus and coach season tickets is less income related. This largely reflects the fact that buses are essentially for local trips only and there is relatively little long distance commuting by coach.

Figure 7: Average Weekly Spending on Season Tickets by Income Decile



Source: Family Expenditure Survey 1998/99

Longer distance rail commuting, is strongly correlated with income. It is possible that there could be a strong London/SE effect in this correlation. A stockbroker from Surrey commuting by train to central London would gain much more from tax relief than a shop worker in Rotherham using a bus.

Given the underlying transport policy objective of effecting modal shift, it could be that the negative equity effects may have to be accepted. An optimal tax exemption may not necessarily be distributed evenly across the income spectrum. Indeed it may be desirable to target longer distance car commuters because of the viability of transferring such trips to rail and the larger contribution to congestion made by such trips.

A transport policy counter to such an argument concerns the importance of trip length in the generation of traffic and emissions. As was noted in the review of the German tax situation, the tax allowance on commuting has been shown to stimulate longer journeys to work. In the UK, there are already strong forces stimulating commuting trip lengthening. These include differences in house prices, double income households leading to compromise home locations and more frequent job changes. For many key transport purposes, trip lengthening is a key component of traffic generation and can be as, if not more important, than modal shift.

According to the National Travel Survey, in the last 20 years, the number of commuting trips actually declined slightly (Noble and Potter, 1998). However, commuting traffic has increased because of a combination of modal shift to the car, a 5% drop in car occupancy and a 20% rise in trip length. A general tax concession would, as in Germany, provide an incentive for trip lengthening and metropolitan decentralisation. Although the tax concession would be on public transport commuting, it could indirectly stimulate car traffic. This would be by encouraging long distance commuting and metropolitan decentralisation to places that are highly car dependent. For example, the effective cut in commuting costs might encourage someone to move from a city's suburbs to a small fringe town or village. Commuting represents only 15% of trips; thus the tax concession might have resulted in a shift from car to train for 15% of trips, but the move to outside the city results in a significant rise in car use for the remaining 85% of trips, and they will be longer car trips as well.

General Tax Concession – Key Conclusions

- A general tax and employee NICs concession on public transport season tickets would cost around £650m per annum.
- A general tax concession on public transport season tickets would probably produce about a 7% increase in public transport use (not all of which would come from car – possibly half). Thus, a general tax concession upon public transport season tickets appears to be relatively modest in terms of modal shift.
- If employers used the tax concession to subsidise season ticket purchases, the modal shift effect would be enhanced among employees offered this benefit. A 15-20% rise in public transport commuting might be expected among such groups.
- An unlimited tax concession would have negative equity effects and could produce some serious adverse transport and environmental impacts. In particular a general tax concession is likely to stimulate trip lengthening, particularly for commuting to areas of less expensive housing in SE England.

6. A Capped ('de minimis') Tax Concession

Could a measure be designed to overcome the policy disadvantages of a general public transport season ticket tax concession while retaining most of the advantages? One approach to overcome the equity problems might be to limit a tax concession to bus and coach fares, rather than rail. Such an approach might, for example, shift trips from rail to bus as well as from car to bus, thus addressing the issue of rail peak-time overcrowding. However, the main point of a tax concession is to effect modal shift from car, not between public transport modes. Furthermore, as was noted above, elasticity studies indicate that modal transfer from car to bus is hard to achieve. Overall, such an approach would severely limit the effectiveness of any exemption. Furthermore, integrated multimodal tickets would make such a concession difficult, indeed the whole concept would be counter to the Government's policy of promoting integrated ticketing and integrated transport developments as a whole.

A more useful approach, mirroring that used by measures in the USA, would be a limit upon the tax exempt amount. This would also reduce the cost to the Exchequer and also address the transport policy problem of trip lengthening (particularly noted in connection with the German case study but which is a key transport issue in Britain).

Family Expenditure Survey information was again used and this indicated that a limit of £10 a week would correct the equity imbalance of an unrestricted season ticket tax concession. The Family Expenditure Survey indicates that 36% of existing expenditure on season tickets is below this level. Thus, if there were general tax relief up to the £500 ceiling, this would result in 36% of expenditure on all season tickets attracting tax relief. With all household expenditure on season tickets estimated at £1,920m, 36% of this is about £690m. If there were a general concession on the first £500, at an average rate of 42% income tax and NICs this would mean a cost of about £290m in Exchequer revenue. This total is for existing users only (with no allowance for the tax concession generating additional demand for public transport commuting) and does not take into account the NICs ceiling (this was allowed for in the assumed 42% average rate of income tax and NICs in the earlier costings for the general exemption for season tickets).

Given the cut in the cost of the tax concession, how much effect upon modal choice might such a capped general concession have? The general elasticity studies suggested that the price effect of tax exemption would raise commuting public transport demand by at least 7%. A cap of about £500 pa would retain the impact for commuting trips where annual costs are below this level. This would apply to short distance commuting, particularly for light rail and bus. There would still be a price effect upon more expensive season tickets, but this would decline as costs increase. The main effect of the cap would be to lessen the price reduction for long distance rail commuting by higher income groups.

Such issues were taken into account in developing and assessing policy proposals in Stage 2 of this work.

Capped General Tax Concession – Conclusions

- A £500 pa tax free allowance would substantially reduce the annual tax cost of a public transport season tickets tax concession.
- A limited allowance would address the equity and adverse transport impacts of an uncapped allowance.
- The modal shift effect would be less than for an uncapped tax concession, but it is possible that the bulk of the effects could well be retained.
- A capped public transport concession could provide a useful positive incentive as part of an integrated transport/fiscal policy package.

7. Targeted Travel Plan Tax Concessions

The consideration of limiting a general tax concession that began in the above section, raises the question as to whether further targeting could improve modal shift and cost effectiveness. As noted previously, if there were a general tax concession on public transport commuting, this could be exploited as part of an employer's Travel Plan. However, might the tax concession be more effective if it were exclusively devoted to extending the Travel Plan tax concessions that already exist? This, indeed, has been the approach in countries with a similar tax treatment to commuting as exists in the UK.

There are strong reasons for such an approach. Firstly, by linking a tax concession to an employer Travel Plan initiative, then additional private-sector leverage is achieved. For example, a general tax concession on public transport season tickets might effectively lower prices by 30%, and so increase public transport use by an estimated 7%. However, if this tax concession is linked to employers subsidising season tickets, then the effective price reduction is greater, and consequently so is the modal shift impact.

Making a tax concession into effectively a 'private-public partnership' will lever additional funds and enhance modal shift effects. However, because it is not a universal tax concession, the rate of take-up and employer attitudes towards such a concession would be crucial factors. This section therefore reviews literature on the impact of such targeted Travel Plan concessions, involving both empirical survey results and stated preference-type survey work in the UK.

Having estimated the modal choice effects of a general tax concession, what would be the cost to the Exchequer of such a measure?

Survey Evidence on the Impact of Tax-exempt Travel Plan Measures

Surveys on the impact of tax exempt Travel Plan measures have used a number of indicators that should not be confused. Three indicators are mainly used, which are:

- Increase in public transport use
- Decrease in all car use
- Decrease in solo (single occupant) car use

To take an example, the following shows a change between the numbers of employees commuting from situation (A) to situation (B).

	Solo Car	Car Share	Public Transport	Walk/Cycle
Situation A	60	10	20	10
Situation B	50	15	25	10

The changes represent a 25% increase in public transport use, a 17% cut in solo car use, but only a 7% cut in car use as a whole.

These different measures need to be noted in the studies of the effects of Travel Plan measures. Impressive rises in public transport use may only be associated with modest cuts in car use, particularly if diversion from walk, cycle or car share is involved.

One of the most significant studies of the effectiveness of Travel Plan measures is Ligtermoet, 1998. He reviewed Travel Plans in the Randstad of the Netherlands, and found a correlation between modal shift effectiveness and the presence of direct financial incentives and disincentives. He used the important indicator of solo car use and his data shows an average reduction in single occupant car commuting of:

- 5% from schemes consisting mainly of carpooling;
- 8% from those incorporating financial incentives to use alternative modes, and
- 15% from those that included financial disincentives to car use.

In the UK, some measures in the latter two groups have tax implications. For the incentives, income tax is involved and for the disincentives, VAT on employee car parking charges would feature. This would reduce the yield available for financial incentives, although it would not, of itself, reduce the disincentive impact upon individuals.

The broad pattern of effectiveness of measures is supported by studies of Travel Plans in the USA. One of these, (COMSIS Corp, 1994) reports the results of the Transit Cooperative Research Program, funded by the US DoT. This unpublished working paper was based upon the results of a sample of 49 employers, all of whose Travel Plans were "exemplary" (i.e. atypically good). This research used vehicle trips as its indicator and concluded that the percentage reduction in vehicle trips arriving at the workplace was:

- Zero for employers whose Travel Plan consisted only of information
- 8.5% for those using alternatives e.g. vanpools, carpools
- 16.4% for those providing financial incentives such as transit
- 25.4% for those who as well as providing financial incentives, provided additional services

The cost to the employer per trip reduced of their Travel Plan measures averaged \$0.75 (about 50p), but once savings on parking costs were taken into account, the employers actually saved \$0.78 per trip reduced.

A study produced by Todd Littman for the Transit Advocacy Project of Transport 2000 Canada (Littman, 1997) used a spreadsheet model to predict modal split impacts, costs and benefits under a variety of scenarios of making transit benefits tax exempt. The modal split changes were derived from a study of USA data of the impact of the USA's experience in employer provided transit benefits being tax exempt up to a specific ceiling. Two surveys of actual experience were used: one from the San Francisco Bay Area, and one from New York City.

The model is looking at the effects of a policy of tax exemption for employer-provided transit benefits over a 25 year period. This work suggests that over this time, such a policy could transfer between 10% and 30% of the recipients' car commuting trips to transit, representing a 5 – 20% reduction in car commuting among employees receiving the benefit. As is noted in Section 5 of this report, long term elasticities are larger than short-term, and the studies Litman drew upon allowed for a 25 year timeframe, which is longer than UK elasticity studies have considered.

These figures appear high, but they, of course, refer only to where the employer-provided transit benefits were offered and were taken up by employees. Not surprisingly, Litman considers factors that influence the rate of uptake to be crucial. He concludes that the uptake depends on whether the tax benefit is simply offered as a staff benefit or is part of "an effective transportation demand management program". The latter means that an employer had a mix of measures specifically designed to influence the modal choice of staff, as in a UK Travel Plan.

A further important piece of evidence, not quoted by Littman, is the summary of the effects of US Federal Employees' participation in Public Transport Benefits Programmes, collated by the US General Accounting Office (1993). Its primary findings were as follows (cited in IBI, 2000):

As of April, 1993, 75 U.S. federal agencies and organizations (out of about 150) participated in the transit benefit programs. At that time, however, almost all the agencies offered a \$21 per month benefit, even though the Act provided for a maximum of \$60 per month transit subsidy. The reason given for this is that the government departments had to find the resources out of their internal budgets. The GAO undertook a survey of the use and results of the transit benefit program. Of the 59,000 people employed by these agencies, about a third (18,500) received transit benefits¹².

Key points made in the testimony were:

- employee participation rates were highest in New York City (88%) and Chicago (80%) and lowest in Kansas City (4%). In Washington D.C., 28% of eligible employees participated;
- about 70% of the employees who received parking from their agencies received it free of charge;
- 12% of the employees who accepted public transportation benefits from their agency previously drove alone as their primary means of commuting to work. Another 9% were other new transit riders.
- the GAO also asked what would happen if the transit benefits were increased from \$21 per month to the \$60 maximum tax-free benefit permitted by the new law that went into force at the beginning of 1993. Twenty-four percent of the remaining non-participating employees said that they would definitely or probably change. This would increase participation from 33% to 49% and the 16% increase would probably all be new transit riders as almost all transit users took advantage of the initial program. With this increase there would be almost one new transit rider for every existing transit user who took advantage of the program.

¹² The program is now used by 31,000 employees in the Washington D.C. area alone

When considering these results, it should also be remembered that this survey took place in 1993. This was before TEA-21 changed the legislation to provide tax incentives to employers to offer transit benefits. Under TEA-21, the employee can provide all or part of the cost of a transit benefit *from pre-tax earnings*. This has resulted in a much higher proportion of employers participating in the program.

The latest summary of the available evidence on the modal shift impacts of tax benefits from the US and Canada, contained in IBI Group (2000), indicates that *on average* the number of employees using public transport to get to work would increase by 37% if they are offered the benefit. To give an example: if, from a total workforce of 1000, 200 (20%) currently commuting by public transport, then the introduction of the tax free benefit on all or part of their public transport costs would increase that number by 37% to 274. The number by car would drop from 800 to 726 – a 10% drop in car use. Total public transport mode share for the whole workforce would therefore increase from 20% to 27.4%.

The IBI report does not provide enough detailed information on public transport costs for a price elasticity to be calculated, but a knowledge of USA public transport costs permits an order of magnitude estimate. The tax free benefit is up to \$60 a month and, with public transport costs low in the USA, a monthly pass (even allowing for some longer distance travel) is unlikely to exceed double this figure. If the benefit is assumed to cover half the actual cost, then a 50% price cut producing a 37% rise in use represents an elasticity of 0.7. In the UK, a figure of 0.3 was found to be typical for the short term, although figures up to over 0.7 did feature for some groups and in the longer term. This comparison suggests that the targeted nature of the USA tax concession, combined with its integration with USA Travel Plan development, is producing high elasticities and modal shift effectiveness.

The IBI report notes that there are circumstances that vary take up and mode shift. One factor was the proportion of total staff who currently commute by public transport and also in relation to the location of the company. In central areas of towns and cities, IBI Group assumed 30% take-up amongst “choice” car users (i.e. those who have a public transport alternative available to them), but only 15% in non-central areas. It can be seen that the percentage of car users who have a public transport alternative available to them will be higher in central areas but that, conversely, the proportion of the workforce that commutes by car at present will be lower. The converse will be the case in non-central areas.

Substitution of Cash for Travel Benefits

The issue of employer-provided benefits raises the issue of the extent to which tax relief produces an actual tax loss to the Exchequer. In discussions with the Inland Revenue and our panel of experts, the difference between tax relief and the actual loss of taxation revenue was raised. The crucial factor is whether travel benefits offered substitute for cash income (or any other form of taxable remuneration). If, as a result of a tax relief being given, a company offers a travel benefit *in addition* to cash income, then the Treasury would continue to receive the same revenue as before from income tax and NICs. It is only if the employer *substitutes* the tax-free benefit for taxed cash income that a real tax loss is involved. In practice the situation is rarely clear cut. There will be instances where partial cash income substitution takes place.

Tax reform measures that directly affect cash income (e.g. a general ‘green’ commuting income tax allowance) will incur a real loss of taxation revenue to the Treasury. However, where a tax concession is given to employer-provided Travel Plan benefits, a major taxation revenue loss is only likely when an employer *substitutes* travel benefits for cash income.

An example of a tax exemption that had little tax loss effect is the longstanding exemption of car parking. The value of this to employees is over £3.5 billion per annum¹³, so taking an average employees’ tax and NICs rate of 30%, plus employers’ NICs at 11.9%, tax relief is £1.5 billion per annum is involved. However, the tax loss is much lower. Except in a few unusual circumstances, car parking is not part of the remuneration package and employers provide parking quite separately to cash income. Therefore this established exemption from being treated as a commuting benefit has not produced a significant tax loss to the Treasury.

¹³ This is an approximate estimate: the UK has 22.3 million workers of whom 65% commute by car (Source: *Transport Statistics Great Britain*). Of this total, it is assumed that half have an employer-provided parking. This produces just over 7 million parking spaces. At a nominal average value of £500 per space per year, this produces an estimate of £3.6 billion per year.

Were there to be a public transport tax concession, might employers simply seek to use it to replace cash income? This could be viewed positively, in that it would increase the impact of state tax concession by the amount the employer adds. A private sector ‘leverage’ effect could thus triple the tax concession price effect and so further increase modal shift.

However, widespread cash substitution would be more difficult than with, for example, the case of company cars in the 1980s. Public transport is a less generic benefit. Like it or not, most employees valued getting a company car, whereas public transport benefits are only valued by staff for who do or could commute by public transport. As is noted in the Employer Survey later in this report, some employers oppose subsidising fares for such equity reasons. Thus the scope for general income substitution is limited, although it might feature in London and the South-East where public transport use is more usual and viable. Given that this is also the area of greatest congestion in the UK, this correlation could be beneficial in policy terms.

The USA experience of the take-up of tax-exempt Travel Plan benefits supports the view that cash income substitution is relatively small. The USA evidence suggests a 5-10% penetration of employer-provided Travelcards might arise after 5 years. The slow take-up of this concession in Ireland¹⁴ also supports the view that cash income substitution is minimal. It should be noted that in the USA there is a capped limit to the tax concession, which is about the same as the maximum benefit available in Ireland. This could be important in minimising cash substitution effects as the scale of the benefit is insufficient to make it worthwhile as a general tax avoidance strategy.

There is a tension here in that, in the right circumstances, to achieve policy aims it is desirable for employers to provide public transport benefits and the tax concession would do this. Equally, it is undesirable for any concession to become a simple cash income substitution with little modal shift benefit. In our interviews with employers we therefore explored carefully the issue of cash substitution. There is always a potential for cash substitution by benefits in kind and we sought to obtain employer attitudes towards this.

Indirect Tax Effects

In addition to the above considerations, there are indirect tax effects of cash substitution. In the private sector, if any travel benefits are in addition to cash income, then this may be funded by employers making less profit than they otherwise would have done. This may affect corporation tax revenues (although that will depend on many other factors in accounting procedures). If these benefits are provided by public sector employers in addition to the cash income, this may be financed by reduced expenditure elsewhere in the public sector and/or higher taxation from other sources and/or higher net government borrowing than would otherwise have been the case. All these situations involve a great deal of complexity and uncertainty. It was decided in conjunction with our steering group that it was not possible to consider these indirect tax and public finance effects in this study.

Tax Loss – The USA Experience

Because of the importance of the tax loss issue, detailed information was obtained on the situation in the USA. Initially, the USA Federal Government implemented a programme of tax exemptions for employer-provided transit and vanpooling benefits (initially at a level of \$65 a month – around £500 per annum). Bill Menczer, from the US Department of Transportation provided the research team with estimates of tax loss to US Treasury from the tax breaks on commuting including qualified parking.

No one knows the total number of US employees receiving transit or vanpool tax free benefits from their employers, since there are no Federal reporting requirements. Estimates of take-up suggest there are about 1 million employees receive the transit or vanpool benefit. If this were at the maximum limit of \$780 per year (\$65 times 12 months), using a personal income tax rate of 28%, then the Treasury would lose \$218 million per year (under £150m). At the \$100 level, to be introduced in 2002, 1 million participants would cost the Treasury \$336 million (£225m) in lost revenue per year. This is assuming complete cash substitution.

¹⁴ Personal communication with M. Wilson, Dublin Transportation Office.

The value of employer-provided free parking is estimated at \$50 billion per year. At an average (low) corporate income tax rate of 34%, this would equate to a tax relief of \$17 billion (£11m).

Following changes made in the US Tax Code in 1998, the US Congress Joint Committee on Taxation estimated that: permitting a cash option for any transportation benefit beginning in 1998, increasing transit and vanpool tax free limits from \$65 to \$100 in 2002, and indexing the \$100 figure beginning in 2003 would cost the Treasury as shown in Figure 8.

Figure 8: Estimated tax loss for increased transport benefits in the USA

1999	+\$3 million	2000	-\$10 million
2001	+\$3 million	2002	-\$7 million
2003	+\$4 million	2004	-\$12 million'
2005	-\$1 million	2006	-\$8 million
2007	-\$3 million		

Overall, the net cost to the US Treasury over this period is estimated to be \$31 million.

It is interesting to note that the USA estimates of tax loss for a £550 capped concession on public transport, vanpool and eligible parking benefits comes out at under £150m per annum for one million participants. This USA information suggests that, in practice, the level of benefit offered by employers and the rate of take-up of the concession is such that actual costs may be around half the potential level of the concession, as well as the fact that the costs would take several years to build up.

Modal Shift of Tax-exempt Employer-provided Public Transport Benefits - Summary

- The additional leverage from the private sector produced by the tax concession is very important. This considerably enhances modal shift effects.
- The overall impact depends on the number of employers taking part and employer tax incentives significantly increases the use of this measure.
- The reduction in single occupancy car commuting varies significantly with location (which largely reflects the availability and quality of the public transport alternative).
- Where offered and taken up by employees, the use of tax-exempt employer-provided public transport benefits achieves a reduction in single occupancy car commuting within the range 8% - 16%, and up to 20% in the long term (25 years). This impact is up to three times greater than the general tax concession effects suggested by elasticity studies in the UK.
- The rise in public transport uses is between 21% and 37% - although not all of this represents diversion from car use.
- A low tax concession payment (e.g. the \$21/month in the USA) results in about 75% of the benefit going to existing public transport users, whereas a higher payment (\$60/month) is associated with almost 50% new users. Too low a benefit cap would be ineffective in promoting modal shift.

Employee Interview Studies on the Impacts of Taxation on Travel Plan Measures

Our project did not conduct original employee interviews, but studies using employee interviews were reviewed and the opportunity was taken to draw upon some interviews conducted for the Scottish Executive by one of this project's participants, Dr. Tom Rye.

Empirical evidence from the Netherlands and the USA suggest that direct financial incentives and disincentives are the most effective Travel Plan measures and that targeted tax concessions to support such measures are an effective policy instrument. Having reviewed such overseas empirical survey results, this section now examines employee interviews in the UK estimating what effect the exemption of current taxable Travel Plan measures may have upon their commuting behaviour.

Bowden (1999) used the Theory of Planned Behaviour model to explore with employees of Watford Council how they would respond to taxable Travel Plan measures. At the time Watford Council had no Travel Plan as such. His work provides evidence that tax was a major barrier to the take up of Travel Plan measures. For example, of those who said they would accept a £50 monthly cash out for not bringing their car to work, 73% said they would not accept the tax bill that such a benefit would attract. The deduction of tax cut the sum down to a level that did not make it worthwhile for nearly threequarters to shift mode. A pre-tax cashout of £72 would have therefore been necessary. For a public transport subsidy, of those who would accept a 50% subsidy, half said they would not if it were taxed. Not surprisingly, Bowden noted that if the payment were lower then willingness to accept tax declined.

An interesting conclusion emerged from Bowden's work that relates to the issue of price elasticity. Car commuters said that the cost of using their car was of relatively low importance. But they said that the cost of public transport was of greater importance in their considering whether to shift mode. The reason for this is because public transport does not have the advantages of speed, reliability and convenience that the car possesses and so cost was stated as being more important. This reinforces (and helps explain) the asymmetrical aspect of public transport price elasticity noted earlier. It also suggests that, in a Travel Plan situation, the tax impact upon the cost of public transport is an important issue.

As part of her survey of rural employees and employers in Oxfordshire, Root (2000) sought to identify take up and modal shift impact should tax-free travel vouchers be introduced. Root's concept of tax-free travel vouchers is based upon the USA TravelCheck model. 17% of her employee sample said they would take part in a travel voucher scheme. Given that only 2% used public transport for commuting, most would represent modal shift. The main reason given for not participating was simply the unavailability of public transport in some rural areas.

Employers were asked to estimate if their employees would use travel vouchers, if available. 15% felt they would do so regularly and a third would use them 'occasionally'. If travel vouchers worth £40 per month were offered, employers estimated that 8% of drivers would transfer to public transport. They also estimated that 17% of car passengers would transfer to public transport, 21% of those who walk and 18% of cyclists.

This proportion is towards the lower end of the results achieved in the USA studies, reflecting the rural context of Root's study and the lack of public transport services. For such a context an 8% cut in car driver commuting appears consistent with empirical studies. The effect upon walking, cycling and lifts in others' cars would also be expected to be higher in a rural rather than an urban context.

The occasional use of public transport, mentioned in Root's work, is an important issue and one where travel vouchers have a distinct advantage over a tax concession on season tickets. A tax concession built around season tickets excludes a number of important groups of people (such as part-time workers for whom season tickets are inappropriate) and part-teleworkers. Conventional season tickets are inappropriate for commuting by part-time employees and teleworkers. This actually reinforces car commuting amongst such groups. Travel Vouchers could be redeemed against either season tickets or daily fares. This would provide much needed flexibility allowing people to use public transport on an occasional basis ('Travel Blending'). Such an approach permit Travel Plans to build a bridge from exclusive car use and is also appropriate for travel blending with teleworking. In principle, Travel Vouchers could also be multi-modal, redeemable against other Travel Plan measures, such as

vanpooling. They would be compatible, for example, with more advanced thinking about integrated Travel Plan measures such as the integrated multi-modal smart card that, as will be noted later in this report, that Pfizer are contemplating.

Work carried out for the Scottish Executive¹⁵ (Rye, McGuigan and Potter, forthcoming) involved stated preference interviews with a sample of staff at a large employer near Edinburgh. As this Scottish Executive study was directed by one of the research team for the present research project, the opportunity was taken to draw upon this stated preference work in order to provide information on the relative effectiveness of measures that would be affected by tax.

Unlike Bowden's study, the employer already had a Travel Plan in place and the employees were familiar with its concept and purpose. However, the Travel Plan included only low cost, non-tax liable measures. It should be noted that one of these measures was a sizeable discount on local train services which is one example of our 'analogous situations' to a tax concession. The negotiated discount involved was substantial - a 40% discount on season tickets with local train operator ScotRail. Data from this employer shows the effectiveness of this measure. After its introduction, the proportion of staff driving alone to work fell from 65% in 1997 to 59% in 1999.

The purpose of the interviews was to understand and to be able to predict employee responses to potential Travel Plan measures. This was because it was recognised that there were some potentially very powerful measures (such as charged parking, or subsidies provided by the employer to those employees using public transport) that were unlikely to be implemented but whose effects should be explored.

The study consisted of a random sample of 80 employees, stratified by the range of modes used. In collaboration with the client, a State Preference survey instrument was designed and piloted. The survey instrument was designed to elicit from respondents their modal choice, given a variety of different scenarios for packages of measures in any future Travel Plan. The interviews took place during January 2000. Typically, respondents would be asked to trade-off travel time by one mode against travel time by another, or cost and parking search time, or an incentive to use a green mode against travel time by car. Only relevant questions were asked to respondents: for example, existing carsharers were not asked about incentives to make them carshare.

Stated preference results

Respondents were presented with different scenarios featuring packages of incentives and sometimes disincentives. They were then asked to say if they would definitely or might possibly change mode, if these options were available. The results implied modal shifts which, when they were compared to available empirical data (e.g. Ligtermoet, 1998; Schreffler, 1996; FHWA, 1990) appeared to be improbably large. This demonstrates a major methodological difficulty with stated preference exercises.

This problem was addressed by blending stated preference with survey data. When compared with survey data, the relativities of the stated preference results appeared to be correct. Therefore, the coarse results were weighted using Ligtermoet's data. As noted above, Ligtermoet's review of Travel Plans in the Randstad, found an average reduction in single occupant car commuting of 5% from schemes consisting mainly of carpooling, 8% from those incorporating financial incentives to use alternative modes, and 15% from those that included financial disincentives to car use.

Thus rather than just accepting the interviewees' responses, this methodology included a verification adjustment using empirical survey results.

Figure 9: Stated preference results (unweighted percentage in brackets)

1.	Scenario C.1-1: provision of preferential parking places for 3 or more car poolers would attract about 5% (34%) of solo car users to car pooling.
2.	Scenario C.1-2: provision of preferential parking places for 2 or more car poolers would attract a higher percentage of 6.5% (44%) of solo car users to car pooling.

¹⁵ The authors express thanks to the Scottish Executive for being able to draw upon the survey work they commissioned for use in this report.

3.	Scenario C2.1-1: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to arrive 15 minutes earlier, would attract about 6.3% (43%) of solo car users to car pooling.
4.	Scenario C2.1-2: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to arrive 30 minutes earlier, would attract about 7.2% (49%) of solo car users to car pooling.
5.	Scenario C2.2-1: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £1 parking charge, would attract about 15% (57%) to car pooling.
6.	Scenario C2.2-2: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £2 parking charge, would attract about 17.6% (67%) of solo car users to car pooling.
7.	Scenario C2.2-2: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £3 parking charge, would attract about 19.2% (73%) of solo car users to car pooling.
8.	Scenario C2.3-1: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £1 parking charge, and were given £1 travel allowance. This option would attract about 10% (45%) of solo car users to car pooling.
9.	Scenario C2.3-2: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £2 parking charge, and were given £2 travel allowance. This option would attract about 10.4% (47%) of solo car users to car pooling.
10.	Scenario C2.3-3: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £3 parking charge, and were given £3 travel allowance. This option would attract about 13.1% (59%) to car pooling.
11.	Scenario C4-1: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £1 parking charge, and public transport is 50% cheaper. This option would attract about 15% (43%) of solo car users to car pooling.
12.	Scenario C4-2: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £2 parking charge, and public transport is 50% cheaper. This option would attract about 17.8% (51%) of solo car users to car pooling.
13.	Scenario C4-3: provision of preferential parking places for all car poolers, while for a solo car drivers, they are required to pay £3 parking charge, and public transport is 50% cheaper. This option would attract about 21.3% (61%) of solo car users to car pooling.
14.	Scenario C5-1: Interest free loans for PT season tickets. This option would attract about 5% (12%) of solo car users to use public transport.
15.	Scenario C5-2: PT is 50% cheaper than currently. This option would attract about 8% (35%) of solo car users to use public transport.
16.	Scenario C6-1: Van-pooling scheme, with charges of £1 per day. This would attract 5% of solo car users.
17.	Scenario C6-2: Van-pooling scheme, with charges of £2 per day. This would attract 3.8% of solo car users.

It can be seen from these results that incentive-only policies have relatively little impact. Preferential parking for car poolers (5-7% reduction in solo car use), interest-free season ticket loans (5%), vanpooling (5%) or even a 50% cut in public transport fares (8% - although, as noted below, a substantial discount had already been negotiated in this case, so the effect of a further fares reduction would be muted).

The 'stick' measure of parking charges managed a 15 – 19% cut in solo car use, but the most effective was combining parking charges with public transport subsidies, which cut solo car use by over 21%.

The most effective measures are those that include financial incentives and disincentives, whilst public transport discounts on their own are moderately effective. It should also be noted that by negotiating a 40% discount on season tickets with local train operator ScotRail, revealed preference data from this employer shows that the proportion of staff driving alone to work fell from 65% in 1997 to 59% in 1999. These results give some indication of the level of modal shift that might be expected from (sizeable) public transport fare reductions marketed to employees in the context of a Travel Plan.

Employee Surveys – Key Points

- The Scottish Executive work confirms the results of empirical studies in the Netherlands and USA that direct incentives and disincentives (particularly used together) are the most effective Travel Plan measures.

- Bowden's work lacked the empirical verification of the Scottish Executive study. However it clearly identified that price is the key factor for attracting car users to public transport. This is because, compared to the car, public transport lacks an advantage in other key factors.
- Root's work indicates the need for any tax reform to be integrated with Travel Plan strategy – in particular the need to provide for flexible, occasional use of public transport ('Travel Blending'). A season ticket tax concession would not fulfil such a role, whereas a Travel Voucher scheme would.
- Overall, employee interviews confirm the results of empirical studies that a reduction in single-car occupancy car commuting can be achieved by the use of financial incentives and disincentives. The effect ranges from about 5% to 20% depending on the mix of measures adopted, timescale and the situation of the individual Travel Plan.
- A fiscal incentive would therefore be supporting an effective Travel Plan measure.

Tax Cost of an Employer-Provided Travel Concession

Assessing the tax cost of a flexible employer-provided benefits, such as a Travel Voucher scheme, involves more conjecture than the earlier tax loss calculations in this report, but order of magnitude figures can be estimated.

One estimate of tax relief from a capped employer-provided tax-exempt travel voucher scheme can be based upon the information in Amanda Root's research. She examined the takeup by employers and employees of such voucher schemes in the USA. In this, she noted that travel vouchers were generally not offered up to the tax-free limit, and estimates that the average UK takeup might be about £3 per week (£156 a year) by just under 480,000 employees. This would produce an expenditure of £75m per annum and tax relief of £31.5m.

Value of Benefit	Tax and Employees' NICs at 30%	Employers' NICS at 11.9%	Total Tax Relief
£75m	£22.5m	£9m	£31.5m

The use of USA data to estimate the level of takeup in the very different UK travel market could well be questioned. An alternative calculation would be to use the same FES data as was drawn upon earlier in this report. The FES data is based upon season tickets only (whereas Travel Vouchers would be more widely used), however it does permit an exploration of takeup to the full value of the tax concession and so provide a maximum estimate of the tax loss effect. What with Travel Vouchers allowing occasional use of public transport and the FES season ticket data including non-taxpayers, it has to be accepted that there are elements in using the FES data that may both over and under-estimate the tax effect.

The baseline situation is an annual expenditure of £1,920m upon season tickets. The USA evidence on the impact of Travel Vouchers is that something like a 25% increase in public transport use could be expected among those to whom the benefit is offered. Figure 9 estimates the tax relief for a range of 10% to 40% takeup of the season ticket market by employer-provided vouchers. From USA and Irish evidence, a 10% takeup in the immediate future is most likely. However, if employers did start to use the vouchers to substitute for cash income, a higher rate is likely. Thus the table below details a 20%, 30% and 40% takeup rate.

The results are surprisingly neat; tax relief amounts to around £100m for each 10% takeup of the season ticket market. As mentioned above, this is a necessarily rough calculation, but the estimates are viewed as reasonable.

Figure 10: Estimate of Tax Loss from Tax-exempt Employer Provided Travel Vouchers

Takeup	Existing users	Existing plus 25% modal transfer	Tax and Employees' NICs at 30%	Employers' NICS at 11.9%	Total Tax Relief

	growth				
10%	£192m	£240m	£72m	£29m	£101m
20%	£384m	£480m	£144m	£57m	£201m
30%	£576m	£720m	£216m	£86m	£302m
40%	£768m	£960m	£288m	£114m	£402m

Overall, a range of figures are emerging for the tax relief involved. The figure based on Root's data (£30m) is lower than for the comparable FES-based calculation (£100m). This is largely due to the lower level of takeup assumed - £156 a year rather than £500. In reality it could well be that the takeup would be lower than the full amount and so the FES-based calculations represents a maximum tax cost.

A likely scenario is that a tax concession targeted upon employer provided public transport benefits would first be exploited by firms with Travel Plans and, initially, be in addition to taxed cash income. This would involve little or no actual tax loss. It would take several years for the tax relief sum to build up, and over time it is likely that a growing proportion of this will come to represent a tax loss as it becomes possible and acceptable for some employers to build this benefit into the remuneration package.

This preliminary analysis led to the development and evaluation of a number of employer-provided reforms in Stage 2 of the project.

Tax Cost of Employer Provided Benefits – Conclusions

- The tax relief of a Travel Voucher - type scheme will not necessarily represent a tax loss to the Exchequer.
- The tax cost of a Travel Voucher scheme would depend on the take-up rate and the extent to which the benefit is offered in addition to, or substitutes for, taxed income. In either case, the tax cost would take several years to build up. There is not an immediate full cost involved as with a general tax concession commuting costs.
- The tax relief estimate varies in the range of £30m to £100m per annum, with the former most likely in the early years of a scheme and the figure rising towards the latter after several years.
- Eventually the tax relief could rise further with takeup by employers, to as much as £400m if the use of the benefit becomes widespread and substitutes for taxable income.
- A penetration of tax vouchers to cover 20% of employees would involve about £200m in tax relief and increase all public transport commuting by about 4-7%.

8. Stage 1 Employer Survey

Purpose and Method of Investigation

When considering the effect of tax upon Travel Plans, as well as the impact upon the travel behaviour of employees, tax also affects the willingness of employers to offer taxable measures. It has been noted above, in both the USA and the UK context, that the tax treatment of commuting benefits can be a deterrent to employers to offer direct financial incentives to staff to green their commuting.

Thus there is, at the very least, a two-stage process that is involved, which is:

- a) Employer willingness to offer taxable measures
- b) Employee willingness to take up the taxable measures when offered

Furthermore it is useful to think in terms of how tax acts as a disincentive in the Travel Plan situation, as well as an incentive. Although obviously related, it is important to explore separately the positive and negative impacts of the tax system.

The main purpose of the employers' survey conducted as part of the Stage 1 work on this project was to explore these issues. It was intended to identify whether and if taxation has proved a barrier to either the Travel Plan measures employers had used, and/or if taxation aspects has reduced the take-up and effectiveness of the Travel Plan measures themselves.

The employers interviewed were selected on the basis that they had sufficiently advanced Travel Plans to have an understanding of the tax issue. Some of the employers interviewed had Travel Plans representing an analogous situation to tax reform and others had measures for which the tax treatment had changed. In these situations it was possible to assess the impacts of these changes on the Travel Plan. In addition, we also interviewed some employers just starting to develop their Travel Plan to see if tax issues had any effects at such an early stage.

The survey aimed to:

- Document employer provided support for employee commuting;
- Identify what modal choice was available to employees;
- Assess what evidence is available of the effects of taxation on work journey modal choice;
- Identify any impacts of the 1999 Budget changes;
- Identify and explore analogous situations to tax reforms and situations where there has been a change in the tax treatment of commuting benefits and where 'before and after' information is available.

The aim was to obtain at least 30-40 good responses representing a balanced mix of:

- City Centre, Suburban, Urban Fringe and Rural locations
- SMEs and large employers
- Service, manufacturing and public sector employers

The intention was not to provide a statistically representative sample, but to have sufficient interviews to cover the broad range of circumstances in which Travel Plans are developed.

The survey involved a combination of postal, Email and telephone interviewing. The question schedule was developed in consultation with the DETR and Inland Revenue. It was designed to minimise the danger of respondents 'playing up' the influence of taxation on Travel Plan measures. The full schedule is reproduced in Appendix 2, but in summary it consisted of two sections. The first explored the measures used (if any) in the organisation's Travel Plan, which were considered most effective and if and why a set of measures (that may have tax implications) were, or were not used. At this point no mention was made of tax issues as such.

The second part of the question schedule did specifically explore tax issues, allowing a cross-check with the first to ensure that answers when tax was, and was not mentioned, were consistent.

In discussion with our steering group of DETR and Inland Revenue representatives, it was agreed that the employers' survey be supplemented by interviews with people and organisations who gave advice to employers on Travel Plans. They were asked to what extent they were asked to advise on the tax issues concerned in developing Travel Plans and how important they felt tax to be among the firms they advised.

Analogous Situations to Tax Reform

The survey also sought to identify situations that produce the effect of tax relief upon the commuting costs within the UK's current taxation regime. Such analogous situations were purposely sought in our survey. These covered:

- Supplier-led initiatives - when an incentive is not provided by an employer, it is not liable to personal taxation. This fares reductions brought about by a negotiated discount or a promotion from a service operator could mimic the effect of a reduction brought about by tax relief.

- Where an employer provides a taxable benefit and pays the tax on behalf of their employees
- Where the local tax inspector has decided a benefit is now taxable.
- Where the 1999 Budget removed liability to taxation from a benefit (e.g. works buses).

There were several examples of such analogous situations. The most common was negotiated fare reductions for staff commuting. It is not surprising that employers would first seek to 'do a deal' with local public transport operators before considering subsidising public transport tickets themselves. As is noted in the survey results below, the scope for employers to do this and the amount of discount achieved varied considerably.

Some employers, notably hospitals picked up the income tax bill for staff for whom they provided public transport commuting benefits. In at least one notable case, the change in tax treatment of staff travel benefits had major modal shift effects.

These analogous situation impacts are noted and discussed in the survey results.

Survey Results

Results were obtained from 49 employers from throughout the UK (although some interviews were partial). The employers interviewed are listed in Appendix 1. We purposely sought to include employers with Travel Plans in the North of Britain, Scotland and Northern Ireland, as many existing studies of Travel Plans have been of Southern and Midlands employers. This was achieved. 14 (31%) of the employers were in the public sector (largely hospital, universities and councils) and 31 (69%) in the private sector. 13 of the employers were manufacturers, and another 4 were combined manufacturing and service organisations (e.g. Hewlett Packard, Boots). The remaining 32 (64%) were service employers.

The approximate split of $\frac{1}{3}$ rd and $\frac{2}{3}$ rds public/private employers and of $\frac{1}{3}$ rd and $\frac{2}{3}$ rds manufacturing/services suggests a satisfactory distribution of the interviews. It was more difficult to find small companies (who rarely have Travel Plans), with only one small company, an architectural practice, being obtained. However there was a good distribution of urban, urban fringe and rural employers.

The survey results covered six broad headings:

- The measures in an employers Travel Plan
- Employer's view of the most effective measures
- Their use of potentially tax-liable measures (these were listed and not identified as 'tax-liable')
- Whether their current measures have any tax implications
- If the employer had modified or rejected a measure due to tax implications
- Evidence of tax impacts upon the effectiveness of Travel Plan measures

The information gathered from the employers varied considerably. In some cases the respondent provided a detailed insight into their Travel Plan development. Such interviews provide a particularly good understanding of how tax issues impact upon a Travel Plan's development. The less successful interviews were basically where Travel Plans were in their formative stages and there was little or no awareness of tax as an issue.

Overall, this survey has provided a rich source of information. The results are presented around the broad thematic issues of the question schedule, but it has sometimes been necessary to explain the detailed context in which the Travel Plan has been implemented.

The Measures in an Employers Travel Plan

The measures used in the employers' Travel Plans covered most of those to be found in guides on this subject. Measures varied from some employers with no real Travel Plan at all, to those with basic

informational measures or a car share database, on to others where real resources were being devoted to provide effective incentives, such as support to public bus services, contract buses, cycle schemes etc. The more advanced Travel Plans incorporated fiscal disincentives, and as will be noted, it is among these that the most notable modal shifts have been achieved. These varied from simple car park charges (e.g. 10p a day at South Derbyshire Acute Hospital, or charges for parking permits at Heathrow) through to Pfizer's sophisticated parking points plan. The latter provides an integrated incentive/disincentive package for staff, whereby their security entrance card to site car parks are credited with an annual allowance of points. If used for parking, the points are deducted upon entry to the car parks. If the employee travels alone by car, the annual points on their card will pay for the car parking they use. If an employee travels by another means than car, or carpools so as to share the points deduction, surplus points at the end of the year can be traded in for a cash bonus (which is, of course, taxed).

An alternative approach to achieving effective disincentives is the removal of car parking spaces. An example is the elimination of all employee car parking provision as part of the Countryside Agency Travel Plan for its site in the centre of Cheltenham. A more common disincentive has been the reduction in car parking or a cut in the employee/parking spaces ratio (usually a result of an increase in the number of employees rather than a reduction in the number of parking spaces).

This variety of circumstances has enabled an analysis of the effect of the tax regime in these different situations. In some cases, tax was a non-issue; in others it was a predominant element in a company's Travel Plan design, with a whole spectrum of responses in between.

Employer's view of the most effective Travel Plan measures

The employers' assessment of the 'most effective' measure needs to be viewed in relation to the other measures they have in place. A car share database may be the most effective, but *only* measure! Asking for the most effective measure is thus an indicator what is most meaningful in Travel Plans that consisted of a mix of measures. In such situations the assessment of effectiveness was based upon worthwhile experience. Our analysis has concentrated upon such employers. One employer, Derriford Hospital, which has an advanced Travel Plan, challenged this question 'as the whole essence of a successful strategy is integration'. However, they still identified four measures as being 'the cutting edge' of their strategy. These were subsidised season tickets, increasing the number of bus routes and services serving the hospital, car parking charges and refusal of parking permits to new non-front-line staff.

Publicity and information systems, although clearly an important supporting measure, were not mentioned by any as being the most effective.

The responses from employers are grouped according to the measures chosen as 'most effective' for commuting. A few relating to business travel have been excluded. Some companies mentioned more than one measure.

Discounted public transport passes (13)

Countryside Agency; Aglient ('most effective by far'); **Standard Life**, Edinburgh; **Sheffield University** (also had parking permit restrictions, parking charges, cycle facilities); **BAA Heathrow, Gatwick and Stansted** – who have secured significant discounts on fares for staff;

It is not surprising that an employer's first preference was to negotiate a discount on public transport passes. Most companies mentioned this, which makes business sense, as it does not cost the company much, and companies are used to doing deals with their suppliers to obtain a good price. This aspect very much fits in with company culture and way of behaving.

In spite of their (multi-) national scope, public transport operators delegate such negotiations to the local level. The scope to negotiate a discount depends on a variety of factors. If an operator has spare peak-hour capacity then the ability to offer a substantial discount is greater and makes business sense. An example is if the Travel Plan involves a city edge site, with any additional trips in the opposite direction to the peak flow. By way of contrast it is hard for an operator to offer discounts for travel at peak times on already congested services and when the marginal costs of extra capacity would be high.

In consequence our survey recorded negotiated discounts from as high as 50% down to 5% (and none in some places).

Pfizer at their Sandwich site had negotiated a significant reduction, but found it hard to do so at their new Walton Oaks site near London. **Aglient Technologies** at South Queensferry in Scotland had secured up to a 40% discount on weekly season tickets from ScotRail. In Edinburgh, the **Royal Bank of Scotland**, located on the peripheral Gyle Industrial Estate, enjoyed a 10% discount on season tickets with Lothian Buses that had been negotiated by the local Chamber of Commerce as part of a wider deal for major employers in the City. **Birmingham University** only gets a 5% discount from local major bus operator Travel West Midlands. The **Open University** has not negotiated a discount for staff, but as part of financially supporting a new route has specified a maximum fare.

Whether negotiated fare reductions are enough was an issue raised by **Bath University**. Here they have an ambitious target for reducing car use linked to a 'Section 106' planning agreement¹⁶. At the moment subsidising tickets is not an issue as they have negotiated a 50% bus discount. However they felt that if the car sharing scheme fails they may consider it as otherwise they will not hit their car use reduction target.

Improving local bus services (8)

A mixture of negotiation, subsidy and pump-priming monies achieved improvements in local bus services. For **BAA Heathrow, Gatwick and Stansted**, 'by far and above' the most effective measure was improving the local bus network, which was estimated to have increased staff use of buses by 120% and reduced car traffic by 8,000 vehicles daily. **South Derbyshire Acute Hospital** (Derby) considered improving bus services to be their most effective measure. They also charge (10p/day) for parking, and have bicycle and car share measures. At **Astra Zeneca** previously fewer than 10 staff took the bus to work whereas now there are more than 170 who do so, '*due largely to the increase in services, reliability and quality*'. **Boots** mentioned this factor (for which they are well-known), as did **Derriford Hospitals, Plymouth** (- a 'huge increase in number of bus routes and services serving the hospital; we have 44 buses per hour on average through the Hospital and 61 per hour at peak times'. (Subsidised fares, car park charges and parking permit restrictions were also mentioned as most effective in this case). **The University of Bath** felt that regular bus service were more effective than their £60,000 cycling initiatives. They negotiated a service every 3 minutes from the town centre and a special fare for students. The 'Rover' ticket is also available at a 50% discount.

Car Parking Charges (6)

Derriford Hospitals, Plymouth (together with support to improve bus services subsidised fares and parking permit restrictions). The **University of Bath** consider their parking charges to be effective, but didn't view them as a Travel Plan measures as they preceded its development. **Birmingham University** also cite car parking charges, but feel that as people begin to accept the charges they will lose their impact. Car parking charges are hypothecated to support the Travel Plan. The charge is £1 per day at central car parks (2000 spaces), 50p per day in peripheral car parks. It is free at the park and ride site outside the university. Sheffield University operate a similarly graded system, where price is dependent on the location of the car park and whether spaces are first come first served, or reserved. They have also secured a park and ride service, using car parks at their halls of residence, served by an extension of an existing bus route.

Car parking charges were mentioned by **BAA Heathrow, Gatwick and Stansted**. All employers located on the airports are charged for parking by BAA as the property owner, but not all charge their employees – so the effectiveness of this measure is muted.

Given that car parking charges were used in relatively few Travel Plans, their mention as most effective measure is significant. They tend to feature in the more 'developed' Travel Plans, and many employers with less mature Travel Plans find it difficult to even contemplate car parking charges. In one case a respondent said that 'staff would be extremely upset'. The Open University had even the 'consideration' of car parking charges removed from its draft Travel Plan. For Boots, it is company policy not to charge, but should the local authority implement workplace charging they will pass the

¹⁶ This is where, as a condition of planning permission, the developer is required to fulfil certain conditions (often called 'planning gain') stipulated by the local authority.

charge onto staff (presumably as this would not then be their action). This was also the position of Marks and Spencers.

Subsidised Public Transport Fares (4)

Relatively few companies subsidised public transport fares with, as noted above, an understandable preference for negotiating fare reductions. Fare subsidies for staff were used at **Southampton General Hospital** (together with contract bus services); **Derriford Hospitals, Plymouth** (together with support to improve bus services, car park charges and parking permit restrictions). **Astra Zeneca** complements support to enhance rural bus services by issuing free bus tickets to staff. The free tickets are intended to be temporary, but the policy is that after 2 years, bus journeys will cost the same as the fuel costs for a single occupant car journey. **DHL** (together with bicycle loan, via the BAA developed Travelcard subsidy scheme)

Contract bus services (4)

Foster Wheeler Engineering, Reading, (other measures were car share, season ticket loan and cycle initiatives); **Southampton General Hospital** (together with subsidised fares for public services); **Eli Lilly** (rural situation – but only this and cycle support featured in their Travel Plan); **Halifax** (out of flexible working, home working, interest free season ticket loan, public transport information and negotiating subsidies with local PT providers);

Car Sharing (2-3)

Despite the inclusion of car sharing in virtually all Travel Plans, it is surprising how few identified it as their most effective measure. **Astra Zeneca** - Ten percent of staff actively car share. Besides their established support for bus services, **Boots** believe that the car sharing scheme, linked to priority parking spaces, is one of the most effective new measures that they have introduced. To date over 800 people (out of nearly 8000) have registered for the permits that allow them access to priority spaces. **Orange** (Bristol) believe car sharing is most effective, (other measures are supporting bus services and providing personal attack alarms) but have no actual data.

Bicycle Facilities (3)

Although a feature of almost all Travel Plans, bicycle facilities rarely feature as the most effective measure. It was mentioned by **Standard Life**, Edinburgh (fitness and health aspect) **DHL** (Bicycle loan scheme) and **Nottingham City Council** (together with season ticket loan).

Parking Permit Restriction (2)

Such actions are rarely contemplated, but by those who do implement them they are viewed as effective. **Derriford Hospitals, Plymouth** - Refusal of parking permits to new non-front-line staff (together with support to improve bus services, subsidised fares and parking permit restrictions). **The University of Bath** banned students from bringing their cars and felt this to be very effective (although this does not affect staff).

Cashout of Car Parking (2)

Pfizer and Vodafone – the only companies using cashout (BAA Heathrow used it as a one-off experiment).

Parking Permit allocation/Carshare (1)

Royal Bank of Scotland – this is a combined incentive/disincentive mix.

Season Ticket Loans (1)

Nottingham City Council (together with bicycle facilities).

Overall, cutting the cost to users of public transport services, and measures to improve the coverage, frequency and general quality of public transport services were viewed as the most effective measures. Employers with more mature Travel Plans also viewed the combination of incentives and disincentives

as important. Car parking charges were much valued by the employers that used them, although parking disincentives via permit schemes also featured.

This pattern of responses fits in with the view of the literature review about the importance of direct incentives and disincentives, but in most cases, employers are trying to avoid the costs that are involved with the incentives and the potential flak from staff of disincentives! It may be that their compromises are unrealistic and that only when this balance is properly addressed can Travel Plans be effective.

Employer use of potentially tax-liable measures

The questionnaire listed a series of measures known to have actual or possible tax liability, without mentioning tax as such. Nonetheless, the employers mentioned a number of issues and problems related to the use of these potentially tax-liable measures. Some of these issues were linked to taxation, but there were other perceived difficulties as well – notably the cost of such measures. Given that tax raised cost, the issue of cost and tax were somewhat interlinked.

BAA Heathrow is considering van pooling, but the main barrier is hitting a large enough critical mass to make this viable. One contributory factor to the difficulty of finding this critical mass of staff is the high cost of vanpooling which is in part related to the unfavourable treatment of this mode when employers assist employees with its costs. Some employers have an agreement with their local tax office for the temporary use of taxable measures to be deemed ‘negligible’ - for example, the Countryside Agency subsidised bus passes for a few staff in temporary accommodation.

An interesting comment from the Royal Bank of Scotland interview was that more costly interventionist measures, such as continuing subsidies for public buses or parking charges would not be acceptable to the Bank’s Executive because of cost, manageability and/or industrial relations. It was very much these factors, rather than their tax implications, which influenced the measures used. The Halifax also viewed the cost implications of incentive bonus payments as being too high and this was the main reason that they have not implemented them, rather than tax. They felt, however, that they may do this in the future, if they could raise revenue from other Travel Plan measures to make it self financing.

With certain significant exceptions, such as contract buses, in general, tax-liable measures tended to be more costly to companies than non-tax liable measures. For example, subsidising season tickets or cashing out car parking rights involved larger sums than non-taxable measures such as organising a car share, building cycle sheds, or disincentives, such as car parking charges, which provided an income and did not cost the company anything at all.

The issue of cost thus came before tax issues. However, the fact that taxation reduced the impact of such measures, pushing up company costs further to achieve the same effect, only reinforced the cost aspect of tax-liable measures.

It is notable that there seemed to be no awareness of the effectiveness of tax-liable measures. In some cases it is possible that, even allowing for tax effects, it would have been more cost efficient for an employer to spend their Travel Plan budget on effective tax-liable measures rather than cosmetic and ineffective ‘information’ initiatives.

Current measures with tax implications

When asked if they knew whether any of their Travel Plans had tax implications, considerable information was volunteered regarding the effect of tax on both the measures contained in respondents’ Travel Plans, and on the effectiveness of these measures.

One unexpected observation came from the banks in the survey. As many employees already received low interest or interest-free loans for house purchases, they had used up their tax-free allowance of £5,000 per year. The elimination of tax concessions on mortgages has particularly encouraged staff to utilise this facility. Thus if they now offered employees an interest-free loan for a season ticket, the employee was taxed upon the benefit. This may be a somewhat sector-specific issue, but there is no reason why other companies could not offer loans for housing as a staff benefit. This does indicate a possible weakness of this general tax concession rather than a specific Travel Plan concession.

In the interview concerning Derriford Hospitals, the Car Parking Permit Buyout and Bus Passes subsidy were identified as having tax implications. Derriford is one of our analogous situations in that the employer pays the tax liability for its staff. The reason given was that it was “felt to be a discouragement to staff if they knew they would pick up a bill later”. It was also felt that some staff would not understand what the bill was or why they had received it. The respondent felt that ‘sometimes it is difficult for accountants like myself to grasp why I have not paid enough tax in a previous year and therefore have an unexpected bill - let alone cleaning and domestic staff, some of whom may not have had much in the way of dealings with a tax authority at all before. The tax is paid direct from the hospital payroll section to local tax office annually in bulk.

Southampton Hospital represents a broadly similar position in that it also picks up the income tax bill for its staff in order to ensure the effectiveness of its Travel Plan. It has chosen to do so because, it believes, if staff were first asked to change mode and then when they had done so were presented with a bill from the Inland Revenue, this would make the Travel Plan even more of a challenge to implement than it is already.

Astra Zeneca subsidises bus fares and pays its employees’ tax liability as a lump sum from its Travel Plan budget. Interestingly their Human Resources Department did not want to handle the additional administration involved in passing the tax onto staff via the annual P11D forms.

Bath University felt that parking cashout would be difficult for a public sector body to justify, although Derriford has managed to do so.

Birmingham University provided a different analogous situation in that it is a member of Company Travelwise, so staff could take up Travel West Midlands’ offer of a 50% discount on Travel Passes to those who give up their car. However, to date only one person from Birmingham University has actually taken up this offer.

One analogous situation that featured in our earlier, 1998, study was that of Johnson and Johnson Medical, whose factory is located in the small rural Yorkshire town of Gargrave. Like many rural employers, the company’s workforce is drawn from a large area, so there is a long-standing works buses policy. Where there is a scheduled route with buses running at appropriate times, staff can purchase tickets at a subsidised rate (currently 60p). The bus operator sells the tickets to Johnson at Johnson at a 10% discount. The difference between 60p and the discounted bus fare represents the company subsidy. For areas where no public bus service exists, Johnson and Johnson have run their own contact bus service for staff, for whom the service is free.

Until 1997 these transport benefits had not attracted the attention of the local Inland Revenue Tax Inspector. However, following a routine check at Johnson and Johnson, the Inspector considered the bus travel benefits should be subject to both Income Tax and National Insurance Contributions. At roughly the same time, the local education authority cut the schools travel budget in response to general educational cuts. This affected the bus operator’s schools income as, with subsidised fares cut, parents started to drive their children to school. The end result was that the company cut back their services.

The upshot of all these events had a substantial impact on passenger loadings to Johnson and Johnson’s factory. There has been a reduction of 200 bus passengers a day and as a consequence of the reduction in bus use, Johnson and Johnson had to build more car parking. Out of a total of over 1,000 staff, under 50 now travel to the site by scheduled bus services. Whereas before, this rural site had over 20% of staff using the bus, it has now collapsed to only 5%. Overall the cut in use of the buses by Johnson and Johnson is not just due to tax being imposed on staff travel benefits, but also because bus services have declined. However, management at Johnson and Johnson feel that the taxing of the bus benefits was “very significant” in this collapse in bus use, even though other factors were present. This is probably an exceptional example, but it does indicate the effect that a change in the tax treatment can have on the use of an employer-provided travel benefit. Probably the most important point is that the high use of public transport was vulnerable to external changes. This is a situation faced by many travel plans and suggests that tax may play a particularly important role in ‘difficult’ Travel Plan situations.

Tax Uncertainty

A further problem linked to taxation was that of uncertainty, where tax rules are not clear, or information is lacking. This can lead to measures that are not tax liable being rejected in the mistaken belief that they are, or complex administration being required to ensure that tax liabilities are being met, when a simpler approach might have been possible. The companies were not sure where to find appropriate advice. The obvious source was their local Tax Office, but many preferred not to 'draw attention' to a potential tax liability. Those who had contacted their local Tax Office at a planning stage had found their advice very useful, particularly regarding whether temporary measures or 'grey' areas would actually be taxed or not. DETR was not seen as a source of advice, although some of the Travel Plan networks were. Transport 2000's work was specifically mentioned.

Some employers, particularly those at the early stages of Travel Planning, were very uncertain about what measures were and were not tax-liable. One, for example, asked our interviewer if free bicycles were a tax issue, and if they had a pool of bicycles for staff, could they be used indefinitely for the commuter journey? They also did not know if motorcycle parking should be taxed as benefit in kind.

Obviously these misunderstandings can be minimised by distributing accurate information as part of the DETR's wider information dissemination on Travel Planning, but it does illustrate a further complication linked to taxation.

In another case a University appears to be exploiting the 'grey area' where a benefit may be viewed by the local Tax Inspector as negligible. Staff and students get free travel on a bus route if they show their ID card. The operator issues a dummy ticket for their records and charge the employer a standard set rate (70p) for the journey. Last year this cost approximately £11 000 – split between students (not taxable) and staff (taxable). They have been advised by the university financial department that the amounts involved for staff are negligible and therefore the local Tax Office is unlikely to be particularly concerned. However, they are considering extending the scheme to other routes, so for how long this situation will remain is an open question.

Wigan Infirmary are facing the tax complications of a similar situation where some travel is taxable and some not. They have free travel for staff on some public bus services. The tax issue makes administration complex, as they cannot easily determine commuters from business travellers.

Overall, once tax was raised in Part B of the questionnaire, it opened up a variety of issues.

Modification or rejection of Travel Plan Measures due to tax implications – the issue of a 'tax efficient' culture

The section of the interview, on whether firms had modified or rejected a Travel Plan measure because of tax implications produced a series of perceptive comments. These very much highlighted the organisational constraints within which Travel Plans develop. These include:

- the limited resources available for travel planning;
- the often relatively junior position of a Travel Co-ordinator, usually in an Estates Department that has no experience of or responsibility for finance and remuneration issues;
- and the general desire within organisations to be "tax-efficient" and "administration-efficient".

These factors combine to produce two main effects: firstly, the rejection of all measures that might attract tax; and, secondly, the rejection of specific taxable measures that are known to have significant modal shift potential but must be ruled out on tax grounds. Often the above factors did not appear to be a result of the tax system, but some did have direct tax effects at their root, and others had a more indirect link to taxation, via the way it affects a company's attitude to different sorts of staff benefits.

For BAA Heathrow, tax implications had certainly affected the design of their Travel Plan. They were, for example 'not prepared to foot what would have been a considerable sum for tax on parking cash out'. They felt that tax reduced the variety of measures they were able to draw upon, and thus it was harder to sort an optimal mix for maximum effect.

The engineering company, Foster Wheeler were discussing potential partnership agreement with Reading Council and Reading Buses. This would have involved a Quality Bus Partnership-style

arrangements. Foster Wheeler's contribution would have involved subsidising staff bus fare, but upon identifying the tax implications this is now 'under review'.

The form of the negotiated reduction in ticket prices by BAA was heavily influenced by tax considerations. These are so heavily discounted "that alone would bankrupt most operators". In return BAA promise to contribute up to £20 000 per year in providing marketing services. They did not want to do it this way, but the tax considerations guided their approach. BAA would also like to reward good travel behaviour with cash rewards, but because of the tax effects, they are investigating the potential to use pension top-ups instead. However, it was felt that Board approval may be a barrier to this tax-efficient option.

Boots feel that tax considerations stop them from being as 'imaginative and innovative' about travel plan initiatives than they might be because of the administrative complexities involved.

Orange (Bristol) were quite hostile about possible taxable measures. When considering the issue of subsidising season tickets, they considered that they might need to increase pay to compensate for the benefit in kind implication. But then they considered *'why should THEY have to subsidise – there are vast discrepancies in PT costs throughout the UK. We need a regulator to ensure consistency in prices - the 'market' is not working well enough to establish comparable prices. This is not our fault!'*

Marks and Spencer's, who are at an early stage of Travel Plan development, said that they did not think they would contemplate implementing measures that might incur tax implications, although they added they had not really investigated the travel plan measures in any depth. The perception of tax as a barrier was particularly evident with M&S; they *'automatically assumed that measures that attracted tax were important to avoid because tax implications were to be avoided.'* Another organisation, at an early stage of Travel Plan development, wondered if an organisation, such as a travel management non-profit making type organisation as they have in the USA, be used to bulk purchase tickets and so provide a tax efficient service to employers?

These responses may seem almost random and linked to individual circumstances, but behind this reaction is something deeper. There is a cultural dislike of any staff benefit that attracts tax implications. This has been an important theme running through many responses to a number of questions in the survey. This is not a transport-specific issue, but is to do with companies having a 'tax-efficient' culture.

This point was highlighted by one company who emphasised that private firms have a 'tax efficient' culture and it is very hard to argue the case for staff remuneration that will increase tax payments. The whole ethos is to reduce tax costs. This thus puts a mind frame against taxable Travel Plan measures and makes it very difficult for them to be adopted. This is also linked to an "administration-efficient" culture. There is a dislike of anything that increases the administrative burden for finance or personnel departments. Consequently, Travel Plan measures that do not attract tax and do not cost the organisation anything, but that have a small administrative cost (such as a discounted season ticket with interest free loan) may also be rejected because they increase administration.

That Travel Plans are not a core activity or a core part of staff benefits only reinforces this situation. Exceptions, like tax liable company car benefits, get through because they are such an accepted part of the remuneration package (and established themselves when they were part of the tax-efficient ethos). Travel Plan measures simply do not have this status at this stage in their history in the UK – or only achieve it in exceptional situations. This helps to explain why hospitals are almost alone in charging for staff car parking. Firstly they do not have the 'tax-efficient' culture to quite the same degree as private businesses, but also – because they have so many staff and visitors in relation to their financial turnover - parking is a vitally important issue, and parking congestion is affecting their core business.

Sue Flack, who provides Travel Plan advice at Nottingham City Council, via the Nottingham Commuter Plan Club noted that sometimes accountants stop travel co-ordinators doing things because of tax implications. *"Travel plans need to be as easy as possible to introduce – it's an attitude thing. One person in a company usually trying to get things going, so the less barriers the better. Current tax rules add another layer of bureaucracy, and make things even harder and more complicated"*.

"It is possible to negotiate with the IR, but why should companies have to do that?"

The organisational treatment of a Travel Plan, and particularly a 'tax-efficient' culture helps to explain why tax liable measures are frequently avoided. This 'tax-efficient' culture even affects public organisations providing Travel Plan advice. In one case regional advice by a local authority to employers developing Travel Plans simply screened out all taxable measures from their advice, which concentrates on measures which have clear tax incentives or could be funded by grants. The consequence was that the companies they advised were simply unaware that any taxable measures might form part of a Travel Plan. Interestingly, in responding to this question, the respondent from Bath University said that they suppose took tax effects into account by adopting *the 'standard approaches that don't have tax implications'*. The view that standard approaches do not have tax implications indicates the strength of the tax-efficient cultural aspect, even in a university.

It is significant to note that the Irish guide to their 1999 tax concessions is entitled '*The Tax Efficient Way to Travel*' and highlights that public transport passes are '*now a tax efficient incentive for your staff*'. They appear to have very much understood how important it is to understand tax-efficient culture of companies.

In our 1998 study (Potter, Rye and Smith, 1998) we noted that Travel Plans are viewed as administratively complex compared to the simple traditional response of building car parks. Company estate departments do not usually have the skills to develop a portfolio of measures to promote bus use, cycling, walking and car sharing. New skills have to be learnt and new people employed. Thus tax effects reinforce the core barrier to Travel Plans by adding to the administrative complexity further. This particularly applies to travel benefits-in-kind, which can be administratively complex, as well as representing an anathema to the 'tax-efficient remuneration' culture.

Evidence of tax impacts upon the effectiveness of Travel Plan measures

The above issue of a 'tax-efficient remuneration' culture extended into responses to the question about whether tax had any impact upon the effectiveness of Travel Plan measures. The question did not explicitly state an expectation that the tax effects would be negative, although this was generally the view taken. Tax issues influenced the effectiveness of Travel Plan in the following ways:

- They act as a further barrier to the adoption of (more effective) financial measures;
- They work against the integration of measures in the most sophisticated Travel Plans;
- They require modification of measures so that they were not liable for tax;
- When tax liable measures are implemented, the tax and its administration absorb resources that could otherwise be used on more Travel Plan measures

One issue that emerged from several interviews was that some Travel Plan measures had been modified to avoid tax implications, which in some cases was to the detriment of their effectiveness. In one case, prior to the 1999 Budget changes, a contract bus service was introduced for 'inter-site' travel, which incidentally called at a station on the way to serve commuters (!) Following the 1999 Budget reforms it was properly rearranged to serve its core commuting function – which had been compromised by 'dressing it up' as something else.

However, some companies specifically stated that tax did not have an impact on their Travel Plans, but some of these were referring to future plans, rather than current practice. For example Astra Zeneca said they would be willing to consider more measures as the company "steps up" its travel plan from the current emphasis on "mild" measures, consisting of subsidised public bus services, carsharing (with incentive for take-up, cycle facilities and inter and intra-site minibuss shuttles. "In due course, and depending on the national/ county environment, this may shift to using mild/strong dis-incentives." Such additional measures include:

- Vanpools
- Providing loans for Bicycles
- Scooters
- Motorbikes in Flex-salary scheme
- Carparking charges.

However, the implementation practicalities of these issues have yet to be faced.

Interestingly they felt that, for their current 'mild' measures, the tax issue had no impact on the effectiveness of the plan at employee level, because the company has "taken the pain" at project rather than individual level. But it has caused frustration to the Manager of the Travel Plan project and the Human Resources & Taxation staff involved.

One issue that appeared important to employers was that, once they accepted that serious 'sticks' were needed to achieve the aims of their Travel Plan (i.e. significant modal shift), useful financial 'carrots' would be very necessary. This was particularly so to overcome internal opposition. The most obvious mechanism was to cut public transport fares and to use the proceeds from parking charges to fund 'carrots'. However, with VAT deducted from car parking charges, and most financial incentives attracting income tax and NICs, it required 'big financial sticks to produce small carrots.' This was an issue raised by Derriford Hospital, who use car parking income to subsidise bus fares, but they lose income to both VAT and paying employees' tax liability. A consequence is they now not only have a waiting list for patients, but also a staff waiting list for season tickets, which they feel 'must detract from the overall take-up'. This tax effect also means *'we have less money to invest in initiatives, which is ridiculous.'*

Boots raised concerns about the workplace parking charges. If they pass the charges onto their staff (as they plan to do) they will have to pay VAT and also absorb the administration costs involved. Presumably, the local authority would lose 17.5% of the proceeds from workplace charging in this way.

The issue of integrating 'sticks' and 'carrots' relates to one of the more advanced combined incentive/disincentive measures – Pfizer's parking cashout points scheme. Pfizer is trying to extend its parking points scheme so that a the staff security/smartcard can be used to pay for either parking on site or for travel by public transport. However, developing such an integrated approach is greatly complicated by the tax situation. Points used to pay for car parking would be tax free – so also would be points used to pay fares on Pfizer's contract buses – but not for using public buses or trains. While transport policy is advocating integration of fares and services, the tax system requires them to be split up again.

Consultant Keith Buchan, who has been an advisor on several Travel Plans, considers that the tax system is acting against more advanced Travel Plan measures, of which Pfizer's cashout points system is an example. Such things *'put people off, as it just seems so stupid, and people can't understand why it has not been sorted if not in the first budget then in the second'*. Overall he was of the view that the current tax situation undermines people's enthusiasm to introduce Travel Plans. Buchan also felt that the tax situation reinforces other barriers (or provides opponents with an excuse) to companies implementing more radical measures. For example, he has been involved with BAA looking at introducing a green travel bonus and at buying out car parking rights. These are difficult measures to implement for non-tax reasons, but tax is one more barrier to face.

Sue Flack, said that "tax is a really, really big issue", especially for free bike, car park cash out and public transport subsidy schemes. Like Keith Buchan, she sees tax as one more barrier, and while it doesn't stop initiatives it is "additional hassle, and against the idea of commuter plans".

Impact of the 1999 Budget Reforms

The empirical research has shown that the 1999 Budget reforms have already had a useful impact by increasing the number and breadth of Travel Plan measures that are being implemented.

Pfizer mentioned that the removal of uncertainty in 1999 regarding contract buses had resulted in them adding extra contract services. Agilent (formerly Hewlett Packard) are now considering contract buses where previously they would have been out of the question. The Open University said that the 1999 reforms had also given them confidence to start supporting public bus services (the Boots situation, with their local tax office charging the company for the employee benefit of enhanced bus services had caused great uncertainty in this respect).

A rather interesting issue that is emerging is the 1999 Budget exemption for supporting public bus services. In a number of cases, employers are specifying maximum fares as part of the contract. For

example, a new Open University-subsidised peak-hour bus service specifies a maximum one-way fare of £1 for a journey of up to 8 miles, which is less than other public bus fares in Milton Keynes. Pfizer's £50,000 payment for enhanced public bus services purposely brings fares down to 10p a mile – the petrol costs of motoring.

In both cases the fares are available to both staff and the general public and so appear to be exempt from being viewed as a benefit in kind. However, might this be leading to companies adopting a tax-efficient but transport inefficient measure? In some cases it would be more effective to subsidise staff rather than bus services, but companies' attitudes towards tax liability seems to automatically push them towards non tax liable measures. Equally, Orange mentioned that they would prefer to support public bus services via a subsidy to staff season tickets rather than run a network of contract buses. This would help develop public bus services in the area. However, they felt pushed towards contract buses by the tax situation, even though it was less effective and was detrimental to the development of bus services in Bristol.

The somewhat neglected issue of car/bike elasticity emerged in three interviews. The Countryside Commission expressed the view that the bicycle mileage allowance needs to be raised from the current tax ceiling of 12p/mile to 20p to have any impact on shifting travel from car. There is a very close correlation with the interview with Portsmouth University who pay 26p a mile cycle allowance (which is taxed on the amount over 12p – coming out at a post tax rate of about 23p). Both organisations suggest a similar rate to have a modal shift impact. Another example comes from a London health authority, who had been working to encourage community nurses etc. to undertake their rounds by bicycle. However, having recently identified that only 12p/mile allowance can be paid, the person planning the measure does not “think that the enthusiastic regime she had found will continue”. She had already investigated and solved all the other problems associated with the measure (selling it to staff, finding lockable panniers for storage of medicine, making sure it was safe to transport medicines by bike etc). The view was expressed that if the scheme does not go ahead, it will be because of the low mileage allowance.

These interviews suggest that a cycle mileage rate of 20p is needed to have a serious modal shift impact. Were a single private vehicle rate to be introduced, making it irrespective of mode could provide a positive incentive would be provided for more sustainable travel.

Equity between Staff

An important issue to emerge is the need for equitable treatment of staff. This is a cross-cutting issue that both is affected by tax issues now and would affect company reactions to any further tax changes. BAA raised the issue of staff equity. They felt frustrated that they can give tax free parking to staff worth at least £800 per year without being penalised, but if they discount a season ticket it is taxable. They felt this gives completely the wrong kind of message to staff. A variation of this theme came in the Countryside Agency interview. The view was expressed that if they were unable to negotiate a discount on bus passes and staff had to pay a serious amount of tax if they were subsidised (e.g. £100 on a pass costing £500), then the interviewee felt staff would ‘kick back at this’. The reason was inequality of treatment with staff who received free car parking without being taxed on the benefit. This comment suggests that staff are aware of the inequality of tax treatment between car parking and public transport benefits – and that this awareness is heightened in firms with a Travel Plan.

An interesting comment came from Boots, who have a longstanding experience in Travel Plan measures. They mentioned that they considered it important to operate an equitable policy for all staff employed by Boots and so, for example, viewed subsidising public transport fares as ‘unfair’. They already substantially subsidise the bus services, although whether this is as much as is devoted to car parking is unknown. Orange, with a less developed Travel Plan, took a similar stance and viewed incentive bonuses for staff as *‘difficult to introduce consistently and equitably when a company has a range of different sites across the UK’*. Eli Lilly also expressed this view, saying they were *‘not in the business of subsidising individuals’* –but that an equitable scheme was needed. They therefore considered cash outs and paying for season tickets not an option mostly for that reason. By excluding such measures they consequently did not see tax as that much of a barrier. Waitrose also cited equity as a reason for not subsidising public transport costs to staff.

This widespread view that subsidising staff using public transport is inequitable compared to car commuters can easily be challenged. Behind it may be an issue of perception rather than reality. In our previous DETR project (DETR, 1999), very few companies had costed the benefit of free parking to staff, so claiming that supporting public transport to be inequitable seemed largely to be on the basis of undervaluing or ignoring the value of parking to car commuters.

Boots also noted the benefit in kind treatment of subsidising public transport fares (or of bonuses). They have enough difficulties with the P11Ds at the moment without making things even more complicated. After their previous experiences (particular regarding their support to public transport routes) they want to avoid getting into conflict with the Inland Revenue.

This aspect of staff equity relates to the issue of whether employers would be able to exploit any further tax concessions for Travel Plan measures by substituting benefits for cash income. The evidence from the survey suggests that for public transport fares this could be difficult because Travel Plan benefits are only of use to certain groups of staff.

Employer Survey – Key Points

The results of the employer survey carried out for this study have shown that tax has made its impact felt on Travel Plans in the following ways:

- As a catalyst for catastrophic change (the Johnson and Johnson example) – although the 1999 Budget changes have reduced the likelihood of this happening
- By effectively limiting the range of Travel Plan measures from which organisations choose – as there is more knowledge in the Travel Plan “community” of the potential pitfalls of taxation, there is an increasing tendency to immediately rule out potentially taxable measures. The 1999 Budget has had a positive impact by widening this choice.
- By creating uncertainty and complexity in the administration of Travel Plans
- By increasing the costs of Travel Plans
- By reducing the effectiveness of Travel Plans, as resources that would otherwise be used to run the Travel Plan and influence modal choices are routed to the Exchequer.
- For business travel, a cycle mileage rate of 20p is needed to have serious modal shift impacts. Were a single rate to be introduced for all private vehicles (car, motorcycle and bicycles) this would provide a positive incentive for more sustainable business travel.
- Tax may not always be the primary influence on the measures that are chosen to make up a Travel Plan, but taxation can play a very important secondary role.

9. Tax Effects upon Travel Plans - Discussion

The Nature of the Taxation problem

The evidence from our employers’ survey indicates a wide variety of issues that require careful consideration, in particular to what extent is a reform to the tax regime an appropriate response to the problems and issues raised. The issues raised in the survey could be grouped into five types of problems and responses as shown below.

Figure 11: Travel Plan Tax Problems and Appropriate Responses

Problem	Appropriate policy response
1. Confusion about the impacts of the tax system	Information and guidance
2. Aversion by employers to certain tax-liable measures that are, nonetheless, cost-effective to	Information and guidance??

companies	
3. Costly and clumsy administration	Reform the administration of tax gathering
4. Uncertainty of liability to taxation on Travel Plan measures	Reform to the tax/NICs regime to remove 'grey' areas
5. The tax system makes certain tax-liable measures costly to implement and reduce their effectiveness	Reform to the tax/NICs regime

A reform to the tax/NICs system is not the only, or most, appropriate response to a problem when the tax system adversely affects Travel Plan measures. In our survey there was a mix of these problems. Some just related to confusion and uncertainty over the entire tax impacts upon Travel Plan measures. Although tax concessions might raise confidence, the main problem here is one that information and guidance would address.

A separate issue is the issue of uncertainty to liability to taxation. This featured strongly in our previous 1998 study and was the major issue addressed by the 1999 Budget reforms. This concerns the 'grey' area where a local tax office may or may not view a technically taxable benefit as worthy of their attention. Although the 1999 Budget cleared many grey areas, others remain or appear to have emerged.

Costly and clumsy administration has been the subject of a previous reform, the PAYE Settlement Agreement, which makes it much simpler for an employer to pay tax and NICs on behalf of their employees for a taxable Travel Plan benefit. However, if employees pay their own tax and NICs, as is normal, then complexities remain, as the survey has identified.

The aversion by employers to certain tax-liable measures is an issue that may, or may not, require a tax reform approach. The survey provides strong evidence that this cultural aversion to tax-liable staff benefits is deeply rooted. There is a strong culture of 'tax-efficient' benefits. Should this be taken as a part of our company culture or should it be challenged?

If the problem is essentially that this tax efficient culture is resulting in the avoidance of Travel Plan measures that are, even allowing for tax impacts, cost-effective to companies, then it would appear that information and guidance is the most appropriate response. However, is this aspect of company culture just too deeply entrenched, so making an information and guidance response a pointless exercise?

There is a distinction between this problem of aversion to tax-liable measures and problems where the tax system actually makes certain Travel Plan measures costly to implement and reduces their effectiveness. The latter certainly requires a consideration of tax reform. However, in practice, tax reform may be the only way to effectively address both these groups of issues. This certainly appears to be the understanding behind the approaches to reforming taxation to support Travel Plan measures in the USA, Ireland and the Netherlands.

Tax and Travel Plan Maturity

A second consideration is that the five different categories of tax related problems play a different role at succeeding stages of the development of a Travel Plan. To understand this, it is necessary to look at patterns of evolution of Travel Plans in an organisation. In earlier work for DETR on the Costs and Benefits of Travel Plans, reference was made of a *Stages of Change* model of Travel Plan development.

These stages are:

- **Pre-contemplation**

At this stage organisations may only be vaguely aware of Travel Plans, or have only a basic understanding and little idea about how to progress. A strong car culture and an absence of a motivator may provide little impetus to proceed. This is currently the stage of a majority of organisations in the UK.

- **Contemplation**

The organisation becomes aware of the purpose and potential of a Travel Plan. This is often prompted by a specific transport issue, such as parking problems or Section 106 agreement, which encourages further investigation.

- **Preparation**

An organisation may now devote resources to develop a Travel Plan. A staff travel survey is carried out to ascertain mode splits, attitudes etc. Negotiations with local transport providers and local authorities may also be undertaken.

- **Basic Action**

At this stage an organisation starts to implement elements of their Travel Plan that typically involve measures that cost very little such as information provision, interest free loans and a car share scheme. The provision of cycle racks and sometimes showers and changing facilities for cyclists can often be incorporated with existing Estates budgets.

- **Incentives Action**

Incentives that cost little are first sought, such as discounted public transport tickets or priority parking for carpoolers. This may proceed into a stage where resources are obtained for contract buses, enhancements to public transport services, subsidised tickets and cash-out of parking spaces.

- **Disincentives Action**

Adding disincentives is a feature of more mature Travel Plans. These would include a parking changing policy, reducing car parking spaces, reducing business car use rates etc.

- **Maintenance**

Organisations will need to continue to monitor impacts and manage the evolutionary process of Travel Plan implementation. This can be a time-consuming process and may require the allocation of a specific staff member to be given responsibility for the day-to-day running of the plan. A continuous programme of review and marketing is required to reflect changes in circumstances and behaviour.

- **Relapse**

This can occur at any stage and may be as a result of a number of factors, such as organisational restructuring, the departure of key members of staff or the disappearance of the problem, which precipitated the plan's implementation.

The survey indicated that most organisations with a Travel Plan have implemented basic measures and some incentives. To date, few have introduced significant disincentives.

One Council interviewed is an example of a pre-contemplation employer. They intend to investigate what is possible through bulk purchasing, negotiated discounts, etc. They envisage that a cost subsidy would be difficult to justify internally. *'The Council would be unlikely to agree to pay people to come to work'*. Instead of subsidising public transport fares they are more likely to re-balance the incentives by addressing the benefit of free car parking. But parking charges are not immediately possible. They would prefer to start with indirect measures rather than being too direct because of the local 'car' culture. However, they feel that a tax incentive *'would help them to get going'*

Interviews with Travel Plan advisors proved particularly enlightening regarding the role of tax at different stages of a Travel Plan's development. David Hurdle, who undertakes this role in a local authority as well as also doing consultancy work on Travel Plans, observed:

My role is mainly to encourage travel plans. With applicants applying for planning permission there is generally no problem at all in securing a travel plan as part of the planning agreement. Businesses accept that, though, of course, it is only securing agreement to do a plan, and once they look into it they may have some concerns. But most recognise at the planning application stage that a plan is necessary.

It is when trying to persuade existing businesses to do travel plans that there is often considerable reluctance. This is when concerns about the taxation system are raised.

The main taxation concern appears to be over subsidising bus travel. After car sharing this usually offers most potential, either negotiating fare deals or contracting tailor-made services.

This experience indicates that tax can be an issue that acts as a barrier to Travel Plan development when there is no planning stimulus to get it on to a company's agenda. It also shows that, as noted in the employer interviews, cutting bus costs is important, and that tax can have an adverse impact if employer subsidies are needed to achieve this.

The Costs and Benefits study particularly addressed the stimuli and barriers to employers making the transition from one stage to the next. It appears that taxation plays a different role at different stages. For example, at the *Contemplation Stage* is where the concept of a Travel Plan is entering into an organisation and where it is likely to face barriers and opposition. In such a situation tax issues can be used by opponents to oppose the entire concept of a Travel Plan. To a large extent this is a perception problem, which might be most appropriately addressed by education and guidance. But the presence of actual tax incentives for Travel Plan measures would be a significant factor in removing such a perception barrier. It appears that the 1999 Budget reforms have played such a role.

Within the action stages, it is characteristic of most Travel Plans that the first actions are low resource ones, such as information provision, interest free loans, car share scheme. As our literature review has shown, these usually have a very limited modal shift impact. As was noted in the Costs and Benefits study, most Travel Plans are at this stage. Only a few have moved on to the more effective measures that require serious funds to be allocated. These include the use of incentives, such as priority spaces, discounted or subsidised tickets, provision of showers and changing facilities, cash-out parking spaces; And disincentives, including changing parking policy, restructuring company car policy, changing business car rates etc.

The transition from the low resource/marginal effect to high resource/more effective actions is where tax is acting as a barrier. This is where companies are starting to consider the sort of measures that will have a major impact on modal shift and show real commitment. It is also the point where the issue of 'tax-efficient' benefits will arise. Up until this stage the measures in a Travel Plan will not have had any tax impacts. Its development will therefore have been consistent with the predominant company culture and, although the Travel Plan may be viewed as a minor activity to the periphery of a company's activities, it will not have actually clashed too seriously with core aspects of the company culture. This would all change once a Travel Plan moves on to require serious incentives and disincentives. Thus tax issues emerge at a very crucial point in the development of a Travel Plan. It is where the company has started to move up the curve of effectiveness.

Johnson and Johnson is an example of where tax can play a role in Travel Plan relapse. In this case the provision of contract bus services and subsidised bus fares on public services was not a Travel Plan as such. It was part of a package that was useful to ensure staff availability in a rural area. The tax issue turned a simple staff benefit into a complex issue for the company. Even if it was a little more expensive for them to build new car parks, this got the issue sorted and it went away.

Tax Effects on Travel Plans – Key Points

- Tax reform is not necessarily the main response to Travel Plans facing a 'tax problem' – information, guidance, more suitable administrative arrangements for the gathering of tax revenues may be important policy responses and should be pursued irrespective of whether or not tax reforms take place.
- In some cases, although information and guidance may appear an appropriate response, their impact would be limited without being spearheaded by actual tax reform. This particularly applies to addressing the reluctance of employers to offer tax-liable Travel Plan measures due to the deep-seated culture of 'tax-efficient' staff benefits.
- The issue of tax and clashes with a company's 'tax-efficient' culture is of most significance when organisations are trying to develop their Travel Plans from their initial, fairly ineffective stages, to be more effective by the use of financial incentives and disincentives.

- There is evidence that tax does reduce the effectiveness of Travel Plan measures and that some modest and targeted reform measures could both eliminate most of the negative tax impacts and ease the development of Travel Plans within a company's dominant culture.

10. Cost Effectiveness and Value for Money

A final task for Stage 1 of the project was to explore how further changes to the personal tax regime should be evaluated? Some procedure was needed to assess the benefits achieved against the tax cost to the Exchequer.

Costs and Benefits

At a general policy level, a simple comparison could be made between the cost to the Exchequer of a tax concession and the modal shift achieved. Such comparisons have already been made for the three types of policy response featured in Sections 5-7 of this report. In summary these results are shown in Figure 12. It should be noted that these preliminary estimates were developed in the context of a range of specific tax reform proposals in the Stage 2 research.

Figure 12: Cost of Public Transport Commuting Tax Changes and Modal Shift Impacts

Measure	Tax and NIC Cost	Modal Shift Effect
A general tax and NICs concession on public transport season tickets	£650m per annum	Raise public transport use by about 7%; cut car use by about 3%
A capped (de minimis) £500 pa concession on public transport season tickets	£220m per annum	Raise public transport use by about 5%; cut car use by about 2%
Employer-provided Travel Vouchers to a NICs and tax-free value of £500pa	£30 - £100m for up to a 10% rate of uptake and whether the benefit substitutes for cash income. A 20% takeup would cost about £200m	Raise public transport use by those taking part by 20-37% and cut solo car use by 8-20%. A 20% takeup would increase all public transport commuting by 4-7%. Cut car use by 2-3%.

These figures permit two calculations to be made; firstly cost per percentage increase in public transport commuting and, secondly, cost per percentage reduction in car commuting. These are shown in Figure 13.

Figure 13 Cost/Benefit of Public Transport Commuting Tax Changes

Measure	Tax and NIC Cost	Modal Shift Effect	Tax cost £ per % rise in public transport	Tax cost £ per % cut in car use
A general tax and NICs concession on public transport season tickets	£800m per annum	Raise public transport use by about 7%; cut car use by about 3%	£114m	£267m
A capped (de minimis) £500 pa concession on public transport season tickets	£290m per annum	Raise public transport use by about 5%; cut car use by about 2%	£58m	£145m
Employer-provided Travel Vouchers to a NICs and tax-free value of £500pa	£200m per annum for a 20% takeup	Raise all public transport commuting by 4-7%. Cut car use by 2-3%.	£29- 50m	£67 –100m

These figures should not be taken too precisely, however, there is a clear pattern. This is that a capped general concession is around twice as cost effective as an uncapped tax concession and that a well designed employer-provided travel vouchers concession would be twice as cost effective as the capped

general tax concession. This provided the basis for the further development of a cost effectiveness methodology in Stage 2 of the project.

An important consideration, as noted in the previous section, is that the travel vouchers option is one where tax cost could be substantially lower than tax relief. Thus the better cost/benefit ratio than the other policy options could be further enhanced.

There are other aspects to cost effectiveness that are not reflected in a simple 'cost per percentage rise in public transport/cut in car use' figure. One is the 'deadweight' issue, which concerns the amount of the tax concession that has no modal shift impact, but goes to people who already use public transport or other more sustainable methods of transport. Whereas something like 95% of a general tax concession may be 'deadweight', the USA studies indicate that a well designed Travel Voucher-style tax concession can reduce the deadweight to nearly 50%. (The GAO survey - IBI, 2000- cited in Section 5 of this report). This is reflected in the better cost/benefit ratios achieved.

Although it is important to design an efficient tax measure, what constitutes 'deadweight' can be a matter of perception. Economic instruments that support existing travel by more sustainable means are just as much a part of an integrated transport policy as those to promote modal shift. A major problem is the gradual depletion of travel by public transport, cycle and walking to the car. Thus a tax measure that reinforces and rewards existing travel by these more sustainable modes can hardly be viewed entirely as ineffective 'deadweight' expenditure.

In much the same way, expenditure upon a Light Rail System may involve the 'deadweight' of trips transferred from bus, walk and cycle. Without the improvement in the quality to public transport that the Light rail system represents, a proportion of those trips would have shifted to car. Thus the issue of deadweight is not a simple matter of what is left over from modal shift. The effect of fiscal policy travel behaviour is more widespread than that.

The use of a Formal Cost-Benefit Approach

In reviewing how tax change proposals are evaluated, a number of formal cost-benefit studies have been identified. For example Litman (1997), Osman, D. and Hobbs, G (1997) and Gommers et al, (1998) use a social cost benefit approach. Should such an approach be used for this study?

A formal Cost-Benefit approach produces a very long and detailed list on both sides of the cost/benefit equation. Using the measures used in the above studies these comprise of:

<i>Costs:</i>	<i>Benefits:</i>	
Reduced Tax Revenue Any time losses Any increase in subsidy for public authority Marginal job losses associated with lower car use Equity losses (regressive redistribution of tax burden)	User parking cost savings User cost savings Employer parking cost savings Reduced road traffic accidents Health benefits Vehicle Travel Reduction Urban Peak Travel Impacts Congestion reduction Change in noise nuisance Change to on-street parking nuisance Any time savings Benefits to freight deliveries Road maintenance reduction Air pollution and CO ₂ emission reduction	Increased revenue to public transport operator Benefits to existing users of public transport of improved service Reduced subsidy for public authorities Jobs generated in public transport and Travel Plan service industry Equity improvements (progressive redistribution of tax burden) Land use impacts (less urban sprawl, development steered to more sustainable locations)

These calculations involve many detailed considerations, only some of which will be examined here.

In Litman's study, the increase in revenue to transit operators was about three times larger than the reduction in income tax revenue. It might be noted that this 3:1 leverage of expenditure on public

transport is better than for many other public finance contributions. How many other public projects manage a public/private leverage ratio of 3:1?

In terms of costs, Litman has a variation of the tax relief/tax cost distinction that we have identified. He considers tax revenue reductions to be economic transfers rather than resource cost because transit benefits would partly displace effectively tax exempt parking. The cost savings to the employer of a reduced parking demand would eventually be passed on to the Exchequer as either taxable wages or profit. This situation also applies in the UK, which indicates the need for a careful consideration of the tax relief and tax cost distinction. An illustration of the importance of this distinction is that in Litman's research, the overall revenue impact is critically dependent on whether the employees who transfer to public transport as a result of Commuter Check previously had free parking available or not. The study from the Bay Area indicates that 66% of organisations using Commuter Check did *not* offer free parking, compared to the assumption in Litman's paper of 20% (34% in his "worst case" sensitivity analysis). Litman's study also assumes, reasonably, that take up of the benefit is higher amongst city centre employees (i.e. those less likely to have free parking and more likely to be already commuting by public transport). In the UK a higher proportion of the total workforce works in city centres than the 20% assumed by Litman. This might well affect the revenue impacts of his model, were it to be run in the UK.

In undertaking a cost-benefit analysis of the policy change, Litman takes into account traffic reduction benefits and increased transit revenue benefits to offset against reduced tax revenues. In all cases tested the benefits exceed the costs; even by adopting pessimistic estimates of very low modal shift impacts and travel benefits, the net benefits are more than twice the reduction in income tax revenue. A major element in this is because it is urban peak traffic flows that are reduced, where congestion costs and the costs to the state of road maintenance and improvements are greatest.

Osman and Hobbs study in London also produces a positive surplus of benefits over costs. This took into account factors such as increased revenue to London Transport, operating benefits, the value of reduced fares to users, and road congestion reduction. Despite a relatively large 'deadweight' effect of the measure generating only a modest modal shift, there was a positive benefit to cost ratio.

Litman emphasises the need to integrate such a fiscal policy with investment and regulatory transport policies and considers that "failing to offer transit tax exemptions significantly reduces the effectiveness of other demand management efforts". This policy synergy aspect is one to which we will shortly return, because it is something that cost/benefit analysis excludes because of its focus at the level of the individual tax measure. Litman concludes by pointing out that any alternative policy to promote transit use, for example by heavy investment in new infrastructure, rarely achieves as good a modal shift as a tax-exempt transit benefit. This cost-effectiveness point is important. In the UK context, some investment in infrastructure would be needed in certain situations to accommodate the increased demand for public transport use that a tax exemption would generate. However, we should not be too obsessed by the London situation, and for many cities (particularly those with largely bus-based public transport systems), spare capacity exists or could be enhanced at relatively low cost. Even in places like London and Birmingham, the careful reallocation of roadspace to reflect a 10% (or so) cut in peak hour traffic could provide necessary capacity for express commuter bus services. Because these accommodate travel flows more efficiently than cars, congestion relief would also occur.

It is worthwhile documenting what effect Litman's carefully constructed cost-benefit analysis has had subsequent to his 1997 study. Todd Litman was interviewed as part of this project. He reported that since 1997 there has been an ongoing campaign, co-ordinated by the Canadian equivalent of the Confederation of Passenger Transport, for employer-provided transit benefits to enjoy similar tax status as they do in the USA. Revenue Canada have not been receptive to this, their chief objections being:

- An excessive revenue loss of \$140 million Canadian or \$2,550 per new transit user (approximately £65 million/£1,186 at current exchange rates).
- Inequity, in that only employees currently using or able to use public transport would be eligible for the benefit.
- That public transport is already subsidised
- That the promotion of public transport is not a Federal responsibility. (This is not an applicable argument in the UK situation).

The revenue loss estimate, which appears relatively small, was based on the Revenue Canada's own assumptions that 50% of all employees who currently use public transport would be eligible for the benefit; that there would be only a 1.8% shift to public transport from car; that employers whose employees changed to public transport would not save on parking costs; and that employers would provide the full cost of a public transport pass.

These objections have been repeated in several ministerial responses to enquiries from those lobbying for tax exemption for employer provided public transport benefits. However there have been two major developments in favour of the campaign for tax exempt transit benefits. The first is that on April 13th 1999 the Canadian House of Commons passed Motion 360 with a majority of 216. This was a non-binding resolution calling on the government to make employer-provided public transport benefits tax-free. Secondly, the Canadian Government Commission on Climate Change has considered a wide range of possible measures to reduce emissions from transport and has concluded that tax-exempt public transport tickets would be the most cost-effective.

Despite these moves and evidence, Revenue Canada have not altered their position and no action has been taken to implement this benefit.

A Pragmatic Approach

The above examination of the Canadian situation and a consideration of the intricacies of a full cost-benefit study suggest that this is not the way forward for the UK. Evaluating costs and benefits are important, but this needs to be done in a way that is appropriate for policy development and does not drag onto the agenda issues that the Treasury and DETR view as outside their policy remit or are addressed more appropriately by other actions.

There is also an issue of system boundary. Should the evaluation be at the level of the individual policy measure or take into account its effect as part of a package of policy actions? The need to integrate fiscal instruments with investment and regulatory transport policies is widely acknowledged. This, of course, is at the very heart of the UK's approach to an integrated transport policy.

These considerations suggest the use of a pragmatic approach to evaluating the costs and benefits of implementing a fiscal instrument that involves two levels of analysis. The first is at the level of the individual policy instrument and the second relates to how well an instrument supports other policy measures with similar or complementary aims.

Level 1: Cost per Environmental impact reduced

Firstly at the level of the individual tax concession, a target-led approach would provide focus to evaluating alternative policy mechanisms. This requires an agreement as to the indicator used. In the context of Travel Plans, reduction in single car occupancy trips seems an appropriate indicator. This is a travel behaviour indicator. Alternatively, an environmental impact indicator could be used, measuring the result of the changes in travel behaviour. The reduction in emissions of local air pollutants and CO₂ reduced might be such an indicator (e.g. tax cost per tonne of CO₂ reduced). This was done in Stage 2 of the research.

Such a target-led indicator are an important part of the UK's transport and climate change programmes and could be developed to evaluate alternative tax reform proposals to support Travel Plans. Indicators such as these have already been used. For example, there is a technique in the USA to evaluate the cost-effectiveness of packages of Travel Plan measures. This is to use empirical evidence on the effectiveness of measures individually or in combination to calculate the cost per single car occupancy commuting trip diverted or eliminated (the latter allows for telecommuting measures). The use of such measures was reviewed in our previous study on the *Costs and Benefits of Green Transport Plan* (DETR, 1999). This method could be usefully adapted to a target-led approach for the cost of policy intervention. The calculation would therefore be cost to the Exchequer per trip diverted onto a more sustainable transport mode.

Drawing upon Root's figures, from the previous section, which assumed a moderate takeup of a Travel Voucher benefit, the estimated effect was that there would be a tax cost to the Exchequer of £27m associated with 480,000 employees using Travel Vouchers. Assuming 20% of these to involve modal shift, then the Exchequer cost of £27m pa divided between the 96,000 modal shifters comes out at £281

per annum. At about 230 round commuting trips a year, this would come out at about a cost to the Exchequer of £1.22p per round car trip diverted. This figure could be compared to the modal shift effects of other state expenditure

This method could be modified for other environmental targets. A reduction in single car occupancy trips is important, but it is also necessary to ensure a reduction in the *number* of cars entering a site as well. This may rise while car occupancy increases. For example, the reduction in single occupancy vehicles being brought about by people who previously walked, cycled or used public transport becoming car passengers! This would also worsen factors such as local air pollution and CO₂ emissions.

There are other indicators, which link to transport and environmental policy objectives. For example, in the IBI Group (2000) study, the estimate is made of the cost per tonne of CO₂ reduced that would be achieved by a tax-free transit benefits program. It was this that convinced the Canadian Government Commission on Climate Change that tax-exempt public transport tickets would be the most cost-effective CO₂ abatement measure. They carefully split their argument between the immediate revenue losses to the government and the wider economic and society benefits of the measure. Thus first they showed that:

“Taking into account the revenue losses to governments only, the program would cost between \$430 and \$950 per tonne of CO₂ reduced in 2010, depending on the scenario considered; for the Flexible Benefits Scenario the estimated costs per tonne of CO₂ reduced in 2010 is between \$770 and \$810. This, of course, is not a true cost but a transfer from governments to transit users. “

They then covered separately the issue that such an approach would yield economic and social benefits exceeding the tax loss costs:

“Taking into account the offsetting increases in transit costs and savings in personal travel costs and in employee provided parking, the net savings in real costs are estimated to be in the order of \$2,900 per tonne of CO₂ reduced.”

And then added that there were even more benefits:

“This study has not considered the cost impacts of reductions in ground level pollution, which would produce further cost savings to society due to reduced health impacts.”

Such a staged approach, making the costs and benefits clear at different levels of policy consideration would be more useful than an aggregated cost-benefit study.

Level 2 - Policy Synergy

There is, however, a fundamental problem with evaluating a policy instrument in isolation. This stems from the nature of fiscal instruments to achieve transport and environmental policy objectives. In all studies on this subject, emphasis is laid on the need for a synergistic package of measures. These involve a variety of approaches, regulatory, direct government action, information programmes and economic instruments. The crucial point is that individual instruments on their own may only have limited benefits. In such circumstances, an assessment of each instrument alone may reject them, but together they are cost-effective.

Furthermore, different instruments play different roles. For example, road pricing on its own is politically unpopular, but its acceptability increases significantly when funds from road pricing are ringfenced for transport investment (Van den Branden et al, 2000). The Government has already recognised this factor in its policy for hypothecating workplace parking and road user charges for transport expenditure.

This policy synergy aspect relates to a number of comments in the employer survey for ‘consistent messages in the same direction’ and of the taxation of public transport Travel Plan benefits contrasting with free employee car parking. At the more strategic level, tax exemption for more sustainable forms of travel are one form of government action that address frequently voiced demands for appropriate

‘carrots’ in transport policy. Transport is a notoriously difficult policy area, and one where it is increasingly recognised that any effective action involves controversy to some degree or another. A tax concession on more sustainable transport behaviour, to both new and existing users, would play an important role in raising the acceptability of other transport measures (fiscal or regulatory) in the Government’s programme.

The lack of positive incentives is also behind the growing perception that transport taxation is nothing more than an easy revenue source for the Government. There is a danger that, unless planned concessions are put in place, the politics surrounding transport policy development will lead to ad hoc political pressure building up that may force the Government into counterproductive taxation concessions.

Indeed this could be an interpretation of what happened following the autumn 2000 fuel tax protests. There is a real danger that the Chancellor could be pushed into conceding a cut in duty on fuel that would reduce Treasury revenues far more than a well designed measure on more sustainable modes. A preemptive tax concession on sustainable commuting initiatives costing £200 - £300m would put the Government in a good position to resist demands for a £1,000m cut in fuel duty that would yield negative effects upon transport and environmental policies.

This policy synergy level, of evaluating the benefits associated with the costs of a tax measure, is difficult to make into a conventional cost-effectiveness assessment. A measure of cost effectiveness usually involves a comparison of different ways in which a particular outcome might be achieved. As noted above, an example might be the cost of achieving a certain reduction in CO₂ emissions by either a green commuting tax concessions or investing in a light rail scheme. The synergistic effects of several measures in a policy package could be evaluated in this way. For example this could include the cost per unit reduction in CO₂ emissions by building 20 light rail systems alone compared with say, providing the capacity via bus priority measures coupled with a tax concession.

Once cost-effectiveness shifts from considering single measures to those of inter-related packages, the situation moves into greater uncertainty. There is relatively little UK data to measure the cost-effectiveness at the individual measure level, let alone in combination with other actions. This, of course, does not preclude the monitoring of effects. The impact of tax concessions in different local situations where other complementary policy measures are in place would provide valuable information for the fine-tuning and evolution of policy. However, the policy synergy issue goes beyond just moving to evaluate the impact of tax measures as part of a policy package. A tax concession can provide support to other key government policies, some of which, as noted above, are being implemented in difficult circumstances. This suggests that the policy synergy analysis needs to have a wider and more strategic consideration.

Double Test

Overall it is suggested that a double test be adopted for considering further Travel Plan tax reforms. One would be an essentially quantitative evaluation of cost per car trip averted or per unit of emissions reduced.

The second test would be qualitative, but would systematically recognise that there are some tax concession actions that could enhance the public acceptance of difficult but necessary transport policy measures and also act as an insurance policy against the Government being forced into politically embarrassing and counterproductive actions. It would be of particular value to monitor the impact of tax concessions in different local situations where other complementary transport policy measures are in place. This would provide valuable information for the policy development.

Value for Money – Key Points

- In terms of tax cost per percentage modal shift achieved, a capped general concession is around twice as cost effective as an uncapped tax concession and that a well designed employer-provided travel vouchers concession would be twice as cost effective as the capped general tax concession.

- There are several factors that produce a difference between tax relief and tax cost. It is important to take into account major tax systems effects in calculating the tax loss associated with a tax relief measure.
- It appears that, whereas general tax concessions do involve a net tax loss, there are compensating factors that could result in a travel vouchers tax concession resulting in a relatively low tax loss figure.
- It is suggested that two sets of indicators be adopted for considering further tax reforms. One would be an essentially quantitative evaluation of cost per car trip averted or per unit of emissions reduced. The second test would be qualitative, but would systematically recognise that there are some tax concession actions that could enhance the public acceptance of difficult but necessary transport policy measures and also act as an insurance policy against the Government being forced into politically embarrassing and counterproductive actions.

11. Stage 2: Developing and Assessing Tax Reform Proposals

The second stage of this research project sought to present a range of taxation measures and to undertake an evaluation of their cost effectiveness. The proposals were the subject of interview discussions with a number of UK and overseas experts, public transport operators and employers with experience of either Travel Plans or introducing measures to assist/green the commuting of their staff. Following these interviews, the 'suite' of reforms was refined and subject to a cost effectiveness evaluation.

All this work built upon the preliminary Stage 1 research reported above. The tax reform proposals varied from incremental suggestions arising from the Stage 1 interviews, through to more substantial proposals, which eventually broadened beyond employer-provided Travel Plans to a consideration of a general commuting tax exemption for more sustainable travel modes.

Design Specification

The intention has been to produce as straightforward, simple and defensible reforms as possible, which can be applied with minimum difficulty.

The Government's *Statement of Intent on Environmental Taxation*, published in July 1997, provided a key set of guidelines for the design of possible taxation reforms. These stated that:

- polluters should face the true costs which their actions impose on society;
- the social consequences of environmental taxation must be acceptable;
- economic instruments must deliver real environmental gains cost-effectively;
- environmental policies must be based on sound evidence but uncertainty cannot necessarily justify inaction; and
- environmental policies must not threaten the competitiveness of UK business.

It has been assumed that, because it is a policy goal to increase the use of more sustainable modes of travel for peak-hour travel, that capacity problems are not an issue for this project. Investment and other policies are addressing this issue. The purpose of the tax concession is to reinforce these other measures to ensure that the modal shift takes place. However, fiscal measures that promote modes with less of a capacity problem could be useful (walk, cycle and bus).

It is accepted that it may not be possible to implement a full reform immediately. This may be for budgetary reasons, but also because it may be necessary to determine how far a reform needs to be taken to be effective. Once in place, the ability to develop, refine and adjust a reform mechanism may be needed. Thus, flexibility to respond to changing outcomes and policy needs would be important.

The aim is therefore to identify a basic 'platform', with suggestions how the platform may be refined and developed in stages.

From the above, a series of key design principles were developed, which were that a measure should be:

- Simple to introduce and administer
- Understandable
- Flexible (for users, providers and policymakers)
- Auditable
- That any 'leakage' of effect be minimised
- Enforcable
- Equitable
- Effective - in terms of cutting CO₂, traffic reduction, and reducing local air pollutants

Assessing the proposals

In exploring and discussing the proposed tax reforms, the interview schedule specifically sought to identify advantages and disadvantages from the perspectives of, employees, employers, public transport providers and Government policy (DETR, Inland Revenue and Treasury). The assessment framework would also need to outline the needs of each of the 'key players' i.e. employees, employers, providers of 'green travel options', and both arms of the Government involved in the study - the Inland Revenue/Treasury, and the Department of the Environment, Transport and the Regions. These are as follows:

Employee

Essentially, for the employee to benefit from any tax concession proposal, it needs to be easy to understand, be flexible to their travel needs, take minimal time and effort to claim, and produce financial benefits as soon as possible. For the policy to encourage employees to commute by more sustainable modes, it also needs to make cycling/public transport/walking etc. as financially attractive as possible.

Employers

For employers, any successful measure would need to be simple and inexpensive to understand, introduce, administer, and enforce or monitor. It would also need to be flexible to the needs of their staff and support 'travel blending' proposals in Travel Plans. Cost predictability would be another employer criterion.

Operators

Green transport providers need to be convinced that an active proposal would make their product easier to sell, and make them money. It is also more likely to be accepted if the process is as cheap and hassle free to operate as possible. Flexibility is also an important issue for operators - any tax measure should allow them to develop solutions appropriate to their situation.

Inland Revenue and Treasury

In addition to the key principles of taxation already noted in this section, and proposed reform measure would have to conform to general taxation principles (particularly equity). For the Inland Revenue and the Treasury the tax cost of a measure is a key consideration, as is cost effectiveness in terms of how much impact is achieved per pound of tax revenue foregone. This gives rise to the issue of 'deadweight' i.e. of giving a tax break to people who already exhibit the behaviour desired. In this case, the Treasury/Inland Revenue would rather target any concession at rewarding motorists who switch to greener modes, than reward those people who already either walk, cycle or use public transport to get to work. The extent to which the latter should be excluded is a contentious issue. Ease of administration and enforcing tax proposals are also key considerations.

DETR

The objective of the Department of the Environment, Transport and the Regions, is for the new measure(s) to deliver a reduction in the use of the car for commuting trips, by making cycling, walking

and the use of public transport more attractive. This should contribute to the Government meeting its targets of mitigating congestion on the roads, reducing greenhouse gas emissions, improving the Nation's health, and improving air quality.

Cost and Cost Effectiveness

Cost Effectiveness

As part of the Stage 1 work, detailed above, information was obtained on the likely impact of any tax reform measure, which could then be represented as a ratio to the tax cost involved (e.g. £ of tax loss per percent rise in public transport use for commuting). However it was felt that, although useful, this was too narrow a measure and did not incorporate an integrated view of transport policy development. We thus sought to develop a more comprehensive analysis grid, with an emphasis on the synergy between a tax reform measure and key elements of the Government's Integrated Transport Strategy.

The individual proposals were also developed in an integrated manner, although for discussion they may have been split for clarity. For example a capped concession for public transport, contracted taxis and vanpools are considered separately and then combined in the integrated Travel Voucher measure.

Firm Size and Location

In order to explore the potential impact of a policy measure, national employment information was combined with special tables from the latest National Travel Survey. This distributed the UK's 22.3 million workforce according to location, firm size and mode of journey to work. It was then possible to use this information to assess the coverage and possible impact of any particular tax reform measure. For example, some concessions might have most impact on employees of large firms in urban areas. This set of data allowed such aspects to be explored, which was not possible using the Family Expenditure Survey methodology used in Stage 1 of this research. For verification, the estimates of tax relief produced using this data set were compared with those using the Family Expenditure Survey methodology and were found to produce very similar results. This data set is shown in Appendix 7. It is suggested that this could be a useful tool for exploring the policy impact and cost of any further changes to taxation measures.

12. The Tax Reform Proposals

This section provides an introduction to tax reform proposals explored in Stage 2 of the project and which were presented to experts, operators and employers. Thanks to feedback and comments from those consulted, these proposals went through variations and refinements, with some ideas rejected and new proposals emerging as the work progressed. Each proposal is considered in turn, with the proposal explained and then analysed using a development of the criteria outlined in Section 11, above.

A) Minor Reforms and Informational Measures

2000 Pre-Budget Statement

The nature of the project has been such that some proposals were fed into the Government's policymaking process while we continued with the research. Two of these featured in the Chancellor's November 2000 pre-budget statement, i.e.:

- Raising the bicycle business rate to 20p per mile
- Lowering from 12 to 9 the minimum seats in a contract bus.

The former was based upon interview information that 20p was the necessary threshold to effect modal shift from car to bicycle for trips of a cyclable distance. The seat definition brought the tax definition of a contract bus into line with other legal definitions of seat numbers and also covered the size of vehicle used in a number of Travel Plans.

Other Minor Reforms

Some Travel Plans include minor benefits-in-kind incentives, for example free *Cyclists Breakfast* on special 'Cycle to Work' days. Local tax offices view many of these as negligible, but tax liability remains unclear and some employers dislike this uncertainty. A specific exemption could be made on minor benefits used to promote Travel Plans up to a value of £50 per employee a year. This could also cover small prizes associated with specified Travel Plan activities (e.g. a monthly draw for Car Poolers), which also feature in some Travel Plans. An alternative would be to exempt from tax and National Insurance the most commonly used incentives (e.g. no more than 4 cyclists' breakfasts a year).

Neither of these are of a magnitude to attract significant cash substitution effects, and relatively little tax revenue loss would be expected to arise.

A third minor reform emerged from the employer interviews, which related to the November 2000 pre-Budget statement announcement that there would be a uniform 40p car business mileage rate and an additional 2p passenger rate. This was the suggestion that there should be a re-balancing between these two and that the business mileage rate be reduced to 36p and the additional rate per passenger increased to 4p so as to positively encourage better vehicle occupancy on business trips.

Itemising Car Parking in Local Business Tax Statements

Car parking is part of the assessment for a company's Local Business Tax, but is not separately identified as such. In our previous work on the benefits of Travel Plans, as well as in this project, employers had little awareness of their car parking costs and how much a Travel Plan might save them. The separate itemisation of the Local Business Tax cost could raise awareness to the financial benefit of developing a Travel Plan.

This issue was explored in our interviews, indeed it was in one of these that Cary Newson suggested this idea. Derek Wright noted that this would require amending the valuation procedure. Inland Revenue sets the rate while DETR sets the multiplier. Roger Vickerman welcomed the transparency this would provide. Alistair Hanton has discussed this issue with the Inland Revenue's Valuation Agency. The main concern is that further detailing of the makeup of the valuation could lead to far more appeals than at present. However, keeping from employers the basis of their Local Business Tax valuation does seem counter to the principle of transparency.

Evaluation

None of these measures represent a significant tax cost. Little is paid in tax on any of these benefits and their wider use would have positive, if only limited, policy benefits.

B) Contract Carriage of Employees on Public Transport, Community Transport and Taxi/Minicabs

The benefit in kind to employees of travel to work by employer-funded contract buses was exempt from taxation and NICs in the 1999 Budget. There is a problem of inconsistency should employers wish to contract the carriage of their staff on public transport services, which remains a taxable benefit. In consequence, the exemption of contract buses encourages employers to develop these to the detriment of public local bus services.

Although other proposals below involve wider tax concessions to public transport, this one is specifically to extend the tax-exempt status to situations in which an employer contracts an operator for the carriage of their staff. When an employer enters into a contract with a bus company, the outcome is essentially the same as a contract bus agreement, except that staff are carried on public local bus services. Such a measure would have a number of key policy outcomes:

- It would strengthen local bus networks, particularly in urban fringe and rural areas where many company Travel Plans are in place and where bus networks are most under threat. The rural policy dimension would be particularly enhanced if the exemption were extended to cover community transport and shared taxi services as well (see below).

- Contract bus services are only really viable for larger companies, with sufficient staff commuting flows to justify their use. A contract agreement for carriage on public local bus services could cater for small and dispersed flows. This would make such an action viable for small and medium sized enterprises, and employers in urban fringe and rural areas.
- It is possible to design a Travel Plan tax exemption to address this situation without incurring the higher costs and potential 'deadweight' effects associated with a wider concession on public transport commuting. A concession linked only to employer contracts with operators would be highly targeted upon employers developing 'serious' Travel Plans. If appropriately designed, this benefit would have low potential for income substitution and consequent tax loss.

This exemption could just be applied to local bus services¹⁷, but it is suggested that it covers, with some restrictions, all employer-contracted works transport services. The intention would be to provide a flexible mix from which employers can choose the Travel Plan measure most appropriate for themselves. This would involve:

- a) Contract Work Buses (as at present)
- b) Contracts for staff to be carried by local bus and community transport services
- c) Contracts for staff to be carried upon local authority multi-modal ticketing services
- d) Contracts for staff to be carried by taxi and private hire operators

The restriction, under (c), to local authority multi-modal ticketing services, would have two key effects. Firstly, it would specifically exclude income substitution, which would be possible were the exemption open to all rail services. Secondly, Local Authority multi-modal schemes exist in PTE areas and are to be introduced elsewhere under part 2 of the 2000 Transport Act. This tax exemption would therefore reinforce this transport integration policy of extending Local Authority multi-modal ticketing schemes.

The full range of options is important for this exemption to be a useful integrated Travel Plan policy measure. Thus, for example, a small employer in a rural area could use a mix of scheduled bus services, some community transport and fill the gaps with a shared taxi contract. An urban employer might find a contract with their PTE for multi-modal travel more appropriate. The concept of integrating tax exemptions into groups of related measures is an important theme in this report. There is a serious danger of developing isolated, ad hoc exemptions, which lead to inconsistencies and inefficiencies. An integrated transport policy requires an integration between the taxation measures that support it.

This proposal emerged from the employer interviews and was discussed with the CPT who viewed this proposal as workable and one that their members could market to employers. Overall this proposal received a positive response and was viewed as having a number of key benefits. It allowed employees flexibility and did not require them to commit themselves to one mode to benefit from the concession, while it also provided flexibility for employers and operators. Halifax also felt using this could also produce positive press reaction and enhance its company image. It also covers Park and Ride widening the scope for this measure. Astra Zeneca felt that multi-company ID's should be feasible if a special ticketing product were not developed.

Regarding contracts with taxi companies, Trevor Hines, taxi operator in Sunderland noted that many taxi operators already have contracts with hotels, pubs etc who pay monthly accounts. The administrative procedures already exist for such a scheme. The only note of caution was expressed by Gordon Dewar (First Group) who was concerned that taxi contracts would be difficult to audit by companies taking out contracts.

Evaluation

Our assessment of this proposal against the set of objectives and criteria developed to evaluate the tax proposals is shown in the matrix below. Regarding tax loss, this measure is felt to have little immediate potential for income substitution. This issue is discussed in more detail later in this report, but the general picture to emerge was that two key aspects reduced the potential of cash income substitution. The first was for measures delivered as services by employers, rather than as cash payments; the second was the issue of equity between staff; if a measure benefited only certain groups of staff then

¹⁷ This is the existing legal definition of *local bus services* (previously called *stage carriage services*).

employers were extremely reluctant to offer it as a cash substitution. Because they had to offer the benefit in addition to cash income, employers would only be likely to do this when facing a serious transport problem. Thus it seems that this measure would probably involve little by way of a tax loss and would be highly targeted upon 'problem situations' where modal shift effects could be expected to be better than in general. However, this assessment does suggest that the take-up of this tax concession would be limited without strong promotion and complementary policy measures. The enthusiasm of the Confederation of Passenger Transport for this measure suggests that an effective promotional network could be established.

The evidence from the Stage 1 research suggested that the success of 'incentive' Travel Plan measures (such as this one¹⁸) depended very much on whether they were combined with disincentives. It also indicated that they could reduce single car occupancy commuting by 8-16% in the short term and by 20% in the long term. The rise in public transport use was in the range 21-37%.

It was argued above that modal shift effects would be towards the higher end of this range, however, for this evaluation a 10% cut in single car occupancy commuting was assumed. The overall effect of this can be explored via the employee database. The highly targeted nature of this tax concession means that take-up by employers might be relatively low, but this measure is designed to apply to all firm sizes and locations, so an average reduction across all could be assumed. 5% of employees means the benefit would be offered to about 650,000 of the 13 million car driver commuters. This would remove 65,000 single car occupancy commuting, equal to an overall cut of half of one percent of all car commuting trips. This is small, but given the targeted nature and probably restricted uptake would still represent a useful measure.

Cost per Tonne of CO₂ reduced¹⁹

An estimate can also be made of the amount of CO₂ reduced by this measure, and of other measures in this report. For this an estimate has been made of the amount of produced by single-occupancy car commuting. According to the National Travel Survey²⁰, the average car commuting by people employed full or part-time was 3,587 miles per year (or 5,933 kilometres) as a car driver. A litre of petrol produces about 2.4 kilograms of CO₂ and a litre of diesel about 2.7 kilograms. A figure of 2.5 kilograms per litre would represent an average for all cars, allowing for the petrol/diesel mix in the car stock. The average UK fuel economy is 9 litres per 100km, although the driving conditions for commuting trips might well involve a poorer fuel economy than the average.

If the average fuel economy were taken, then each single car occupancy commuting trip produces about 1.3 tonnes of CO₂ emissions per annum.

When policy measures are considered, this is often the extent of the cost-effectiveness calculations made. An example is when considering the price effect of changes in Road Fuel Duty. However, there is an issue of any changes in CO₂ emissions arising from how people adjust their travel behaviour. If the change in the tax regime leads to a reduction in CO₂ from car travel and an increase in the use of public transport, then the increase in CO₂ emissions from the latter should be taken into account.

To estimate the net reduction in CO₂ emissions, this research drew upon a review and survey of the primary life cycle fuel consumption of a wide variety of vehicles (reported in Potter, 2000). This detailed the vehicle types, their fuel consumption, number of seats, average occupancy and MJ per passenger kilometre. These figures indicated that public transport in peak hours used less than 20% of the energy consumed by a single occupancy car. Some public transport uses electricity, which emits less CO₂ than petrol, but the greater use of diesel (with a higher carbon content) would counteract this. Thus for every peak hour car trip diverted to public transport, it is estimated that the *net* CO₂ saved would be 80% of the *gross* cut in CO₂ from the car. This allows a net estimate of CO₂ emissions to be made. 80% of 1.3 tonnes of CO₂ per annum is just over 1 tonne.

¹⁸ The Stage 1 report looked at direct subsidies to the cost of public transport fares. A contract agreement at free or subsidised rate would have the same effect as a fares subsidy.

¹⁹ Particular thanks are due to Dylan Underhill of the Inland Revenue for his input to the development of this methodology. Discussions on the development of this methodology are ongoing.

²⁰ Information provided by DETR

Of course, these calculations are for direct modal shift to public transport only. For modal shift to walk and bicycle, there are no associated rises in CO₂ emissions. Also where the effect of the tax change is to both effect modal shift and reduce trip length, the 'rebound' rise in CO₂ would be less. Thus the net figure here of 1 tonne cut in CO₂ per annum per single car occupancy trip diverted would be an underestimate. However, if the measure results in pedestrians and cyclists shifting to public transport, then further additional CO₂ emissions would result.

Further research could explore these counterbalancing effects, but for the purposes of this study, as there are factors that might both increase and decrease the 'rebound' emissions, the net figure of 1 tonne of CO₂ is retained.

Overall the conclusion is that a reasonable estimate of the reduction in each single occupancy car commuting trip is:

- 1) a gross cut of 1.3 tonnes of CO₂ per annum per reduced car trip;
- 2) allowing for associated increases in public transport use, a net cut of about 1.0 tonne of CO₂ per annum per reduced car trip.

Further work should be undertaken to produce figures for different modal shift situations, but for the purposes of this report these figures are viewed as appropriate.

It is important to emphasise that, in comparing the CO₂ reduction effects of tax change proposals in this report to those of other policy measures, it is necessary to establish if the basis of comparison is gross or net CO₂ emissions. It appears that most policy evaluations use gross figures.

As to tax cost, it is felt that this measure is very unlikely to attract much income substitution. To explore this issue, it could be assumed that a fifth of those taking the benefit involved cash substitution. These would include existing public transport users, ex-car drivers plus others who will shift from walk, cycle and car passengers²¹. Assuming the concession to average £500 a year, this represents about £20m, with a loss of Tax and both employee and employers' NICs at 42% of £9m. This is a very small sum, and if it did succeed in achieving 65,000 modal shifts, the cost per single car occupancy trip diverted would be about £140 per trip a year. The cost per tonne of CO₂ reduced would be £110 gross and £140 net.

Even if it were assumed that all tax relief were tax loss, the total of £45m is still relatively modest, although the cost per single car occupancy trip diverted would rise to £700. The cost per tonne of CO₂ reduced would rise to £540 gross and £700 net.

These figures are, of necessity approximate and err on the cautious side. Even if the modal shift effect were lower, the policy impact still represents very good value for money. Overall this measure appears to offer modest benefits, with very low costs to the Treasury and a good financial value for money. Furthermore, in terms of policy synergy and design it also scores well as the analysis grid shows.

Figure 14: B - Contract carriage of employees on public bus services.

PERSPECTIVES	OBJECTIVES/CRITERIA	ADVANTAGES	DISADVANTAGES
Employee	administration effort	Employee would only need to acquire a form of business ID, or a special commuter ticket.	
	cost reduction	Cost of public transport cut or is free.	Of benefit only if there is a public transport service to use.
	immediacy	Very good.	
	flexibility	Can be used for regular and occasional trips.	
	comprehensibility	Very understandable.	

²¹ The details of these calculations are in Appendix D

Employer	administration effort	Very straightforward. Once contract signed, requires only monitoring and regular bulk payments to operator(s).	
	susceptibility to fraud	No foreseeable problems if photocard used.	
	cost predictability	Very good. Payment agreed up front.	
	value for money	Once contract set up, all money paid direct for benefit of staff. Should be possible to negotiate discounts with operators in many cases. Good if parking provision can be reduced as a result.	Still an additional cost to the employer (albeit tax efficient).
	flexibility	Flexible.	
Green transport provider	administration effort	Once contract drawn up, merely need to check when payment received.	
	susceptibility to fraud	No more fraud potential than current ticketing arrangements.	If more than a few companies involved, employer ID probably needs replacing with new commuter ticket/pass product.
	introduction costs	Once contracts set up, possibly only need to develop new commuter ticket/pass. Large benefit of 'cash up front'.	
	will it make money?	Up front money and employer subsidy should stimulate use.	
	flexibility	Terms of contract can vary according to commercial circumstances. Pretty good.	
	staff comprehension	Good.	May need to establish new commuter ticket/pass product if more than a few companies involved.
Inland Revenue/ Treasury	auditability	Easy, because payments made in bulk.	
	administration effort	Easy, because payments made in bulk.	
	enforceability	Easy, because payments made in bulk.	
	equitability	Most likely to benefit lower income groups.	Only applies on services/ networks well used by employees of

			particular company. Requires 'interested' employer before employee benefits.
	effectiveness (see DETR objectives)	Take-up likely to focus upon 'problem' situations, although overall rate of use expected to be low..	More likely to be noticed by lower socio-economic groups than tax incentives, provided they are offered the benefit by their employers.
	targeting/deadweight	Low relative to policy impact.	Good ratio of new to existing users.
	tax loss	Under £10m revenue lost.	Could be £45m under pessimistic assumptions
DETR	reduce greenhouse gases	Small positive impact	Depends on take-up
	reduce air pollution	Small positive impact	Depends on take-up
	increase cycling levels		May reduce
	improve road safety	Small positive impact	Depends on take-up
	improve the Nation's health		Perhaps may reduce
	increase walking levels		May reduce
	increase use of public transport	Could be locally substantial and important for previously marginal services, especially in less densely populated areas.	
	slow the growth in road traffic	A small but useful contribution	

C) £600 per annum allowance for specific 'greener' commuting modes

The following are a group of measures that can be the subject of individual tax concessions, or linked into a single integrative exemption. For reasons already noted above, the latter would be the preferable approach. However, the measures are reported individually first and were made available in this form for discussion with our group of experts, operators and employers.

C1) Income Tax and NICs concession on Employer-provided public transport Travelpass/season tickets of up to £600 per person per annum

The project examined the case for an unlimited season ticket tax concession, but this would be regressive (concentrating the benefit on rich, long-distance rail commuters) and could encourage long distance commuting with negative environmental and transport impacts (like metropolitan decentralisation to highly car dependant areas). In Stage 1 a £500 per annum allowance was considered. This was raised to a £600 limit after we conducted research that showed this would cover the cost of all city-wide Travelpasses (except London where it would cover two-thirds of a zone 1-6 pass). This limit would also, as was noted in Stage 1, result in the concession being more equitable than an uncapped measure, and have minimal trip lengthening effects.

A major issue is whether this concession should extend to cover the occasional use of public transport involving the purchase of daily tickets. There would be no way such tickets could be verified as having been used by the individual concerned for commuting, and it would be administratively complex to deal with such situations. A certain amount of 'leakage' might have to be accepted, but if the concession were not applied to daily tickets, this measure would not be suitable for part-time workers,

people who part-teleworked two-three days a week and people who occasionally use public transport (i.e the 'travel blending' concept of most Travel Plans).

In the USA, their transit tax exemption includes daily tickets and we asked Bill Menczer, of the US Department of Transportation, how fraud was avoided in their system. He responded that "in cases where cash reimbursement is permitted, then the employee is required to certify the expenditure." This is done "through either presentation of proof of payment (receipts, cancelled cheques, expired passes or vouchers) or a signed statement attesting to the expense, prior to the issuance of reimbursement with pre-tax dollars by the employer. Such certifications contain penalties for false claims that include termination of employment."

Such proof of payment for daily tickets would be very cumbersome, but some employers might be willing to undertake the administration. It would be possible to open such a measure to daily tickets, if the employer so wishes, but they would obviously have to keep records that would be to the satisfaction of their local Inland Revenue Office. New ticket products (e.g. Smartcards or route-specific carnets) could possibly address this problem. The use of Travel Vouchers (proposal C3 below) would also make the tax exemption of day tickets easier.

If not made a separate provision, it would be necessary for contracts between employers and operators to collectively pay for staff travel to be accepted. This would not have the 'daily ticket' problem.

This proposal raised a number of key issues from our interviewees.

Coverage

One interviewee asked how this concession would work for the self-employed. This would need to be via their annual tax return.

Impact

Agilent, in reference to this and other proposals for public transport, said the potential impact on staff was seen to be as great as that resulting from the existing discounts they had secured on rail travel. These had achieved about a 10% reduction in drive alone commuting over 2 years). "Thus the measure has great potential to change behaviour, by further remedying one of the key perceived problems with public transport – its price." However, this interviewee also noted that it is vital that the processes of 'implementation' and 'utility' are simple - easy to understand, and easy to see how the individual would benefit. If it is not simple, people will not bother with the hassles and will not change their travel mode.

Administration

The first, which arose across all the proposals, was the need to avoid administrative complexity and costs. Halifax felt that this system could be set up, but viewed the administration as a hassle. John Dowson, Nottingham Chamber of Commerce, emphasised that the concession should be made 'incredibly simple for the employer to administer and suggested it could be made dependant on the provision of travel costs by the employer and returned on the P11D form less a deduction of £600.

Halifax felt that the potential for cash income substitution and thus saving of employer NICs would not be enough to motivate employers. As is discussed later, they held the view that income substitution was administratively cumbersome and unlikely to occur in practice. It was felt this measure may be of interest to employers already with Travel Plans, but would probably not motivate others to offer travelpasses to staff. This reinforces the point that the tax change supports other Government transport policy actions.

A Capped Allowance

In general no comment was made on the idea of capping the allowance, beyond one or two interviewees saying that they saw the logic for it. At Astra Zeneca, it was suggested that there be no cap. In their rural context, staff who commute by public transport pay around £15 a week (£720 per annum for a 48 working week year).

Equity

The issue of equity between staff is an important issue to most employers. Comments on this arose on several of the proposals, but particularly applied to this one. The opportunity has been taken to pull these comments together here.

Many employers were very sensitive to the issue of not treating one group of staff differently from another in terms of general benefits of employment. An exception was Agilent, where the view was expressed that as commuter transport is still very much a 'personal choice' the individual can choose to gain the benefits or not. If some people feel that they could NOT take advantage of this (because of poor transport links etc), the company would be under no obligation to even things up for them - and it would be impossible to set up administrative systems to deal with such differences. The benefit would therefore be advertised as an 'option' - with all the options set out, visible for staff to make their own decision on travel mode.

This comment indicates that employers' understanding of what is an equitable situation regarding transport benefits varies. Some companies felt that direct support for the cost of commuting by public transport would be inequitable to their staff and such subsidies would disadvantage car commuters and those for whom public transport was unavailable. This perception largely ignored the cost to the company of providing car parking, which is a long accepted and unquestioned expenditure. When employers actually identify the costs of parking, their understanding of equity between staff changes. Rather than seeing subsidising public transport, cycling and other 'greener' commuting being viewed as inequitable, it is seen as balancing the benefits between groups of staff. However, some interviewees noted that any attempts to rectify this attracts negative taxation effects.

Once employers have a more rounded understanding of the commuting benefits situation, their responses to the different proposals moved to a more sophisticated level. For example, one employer, (Halifax) expressed a dislike of actions targeted on modal switchers rather than those who already behave in a greener manner. They certainly viewed such tax concessions as creating an inequitable situation and felt that designing tax concessions in such a way would result in poor takeup.

Cash substitution

Another major issue that covers several proposals is the extent to which the benefit would be offered as a substitution for cash income rather than in addition to it. This is a crucial distinction for estimating the cost of a tax concession to the Treasury. If an employer offered a travel benefit in addition to cash income, then the tax concession would involve little or no loss in personal tax revenue. Were the benefit used to substitute for cash income then a real personal tax loss is involved.

In response to this measure there were a number of views. Halifax said that "salary sacrifice schemes were not popular with employers or employees". It is other companies have had no real success in general with cash substitution and view staff benefits in kind as in addition to salary. Carey Newson wondered whether cash substitution was *necessary* for widespread success, if employer-provided public transport passes were to become part of employment culture and embedded within it. It would then become part of a cash and benefits package that would be offered and become an accepted part of staff recruitment and retention. This is an issue that is discussed further with respect to the other proposals

Daily Tickets

This and some other proposals raised the issue of how the tax concession could encourage the occasional use of public transport. Carey Newson felt that availability of tax relief to daily tickets was crucial and felt that carnets and smartcards needed wider use, especially if integrated with worksite employee passes or employer-provided incentive passes. Vodafone felt that Carnets would be good and needed pushing.

Overall, unless it could cover such situations, this measure was viewed as insufficiently flexible.

Complementary Actions

Halifax noted the need to have a viable public transport option to exploit this concession.

Evaluation

Our assessment of this proposal against the set of objectives and criteria developed to evaluate the tax proposals is shown in the matrix below. Regarding tax loss, there is clearly a range of uncertainty involved here, which will be considered in a more strategic context in the Discussion section of this report. The tax loss will very much depend on the rate of take-up and the extent to which the benefit is offered separately from, or as part of, the remuneration package.

If, as for proposal (B), it is assumed that this benefit were offered by employers covering 5% of the workforce, what might be the modal shift effect? Unlike proposal (B), this does not allow for flexible use of public transport, and would be less applicable in rural areas. Consequently, the modal shift effect upon car drivers would be expected to be lower. It is therefore assumed that, among those offered this benefit, 8% of car drivers would shift to public transport.

As was shown by our survey of regional travellers, the full allowance would not be used by all commuters. Assuming an average benefit of £500 per annum, and applying the above assumptions, tax relief of £40m would be involved. At a low level of take up, it could be assumed that relatively little income substitution would be involved. If this were so for a fifth of those involved, then tax cost would be about £7m and the cost per car trip diverted would be about £140. The cost per tonne of CO₂ reduced would be £110 gross (£140 net).

However, this measure does have greater income substitution potential than proposal (B). Were 50% substitution to arise, the tax cost would be £20m and the cost per car trip diverted rises to £400 or £800 for total cash substitution. The cost per tonne of CO₂ reduced would rise to £300/£600 gross (£400/£800 net).

These figures are clearly very sensitive to the level of uptake and the extent to which income substitution features. The range of cost per trip diverted and per tonne of CO₂ reduced would remain the same, but the impact on overall traffic levels would increase. A 10% take up rate to the full £600 allowance would raise tax relief to £97m and 20% take up to £190m. It seems likely that cash income substitution would increase at higher take up rates. However experience from the use of similar measures in the USA and Ireland suggest a gradual take up, so it seems likely that the tax cost of such measures would be initially very low, but that eventually a tax cost of up to £200m should be assumed, even though the probable outcome would be lower than this figure.

Figure 15: C1 - Employer-provided income tax and NICs concession on public transport Travelpass/season tickets of up to £600 per individual.

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system.	
	cost reduction	Cost of public transport cut.	Only if it is worthwhile buying a season ticket.
	immediacy	Good.	
	flexibility	Possibly, if extended to stored value non-transferrable 'carnet' style tickets.	Not if strictly applied to season tickets only.
	comprehensibility	Very understandable.	
Employer	administration effort	Fairly straightforward administratively – not a lot different to processing business travel expenses.	More people potentially liable to claim for travel to work than for business travel expenses. Potentially complex where refunds arise.
	susceptibility to fraud	Same risk as with business travel expenses.	Again, potentially a larger volume of applicants to check.
	cost predictability	Reasonably accurate	

		once take up rates established.	
	value for money	Depends on money firm could save from parking provision for its employees.	Still an additional cost to the employer (albeit tax efficient).
	flexibility		Easier for employer if employee opts into the scheme for a reasonable length of time. Monthly changes not easy to accommodate.
Green transport provider	administration effort	Should not be too complex. Merely involves validating a form while season ticket being purchased.	Refunds potentially more difficult.
	susceptibility to fraud	No more fraud potential than current ticketing arrangements	
	introduction costs	Low. Minimal extra administration costs should be offset by a shift to season tickets (faster boarding times, cash up front etc.).	
	will it make money?	Effective cut in fares should stimulate public transport use.	
	flexibility		A problem if daily tickets are not available
	staff comprehension	Yes. If form is simple enough and standardised there should be little problem.	
Inland Revenue/ Treasury	auditability	As for business travel expenses currently.	
	administration effort	As for business travel expenses currently.	
	enforceability	As for business travel expenses currently.	
	equitability	£600 limit means covers all city-wide passes except London, and yet should still not encourage trip lengthening behaviour.	Only applies where public transport a realistic alternative – little use in rural areas. Occasional users not covered. Requires 'interested' employer before employee benefits.
	effectiveness (see DETR objectives)	If widely publicised.	
	targeting/deadweight	Possibly good if linked to removal of parking provision.	Would probably be most used by existing public transport users.
	tax loss	Low if little cash substitution (c.£20m)	High (up to £200m) if employers offer in lieu

			of pay or pay increases.
DETR	reduce greenhouse gases	Small positive impact	Depends on take-up
	reduce air pollution	Small positive impact	Depends on take-up
	increase cycling levels		May reduce
	improve road safety	Small positive impact	Depends on take-up
	improve the Nation's health		Perhaps may reduce
	increase walking levels		May reduce
	increase use of public transport	Could be locally substantial and important for previously marginal services, especially in less densely populated areas.	
	slow the growth in road traffic	A small but useful contribution	

C2) Income tax concession of up to £600 per annum for Employer Contracted Shared taxi or Vanpooling scheme.

Targeted tax concessions for public transport use will not be as appropriate in rural areas as in more urban or densely populated settlements. Instead shared taxi or Vanpool schemes may be more suitable. This proposal develops the concept of Proposal C1 and applies it to Shared taxi /Vanpool. This proposal is that the employer-provided £600 pa Travelcard/Season Ticket allowance could be extended and to cover methods of transport more appropriate for rural areas.

A particular concern that required exploring was the possibility that individuals could register for a Vanpool scheme and not use it, enabling the Vanpool 'driver' to use the vehicle as a company car, and thus avoid all company car taxation! How to define genuine vanpool is thus an issue.

Interviewee Responses

This proposal sought to provide a tax concession that was particularly appropriate for smaller employers and in rural areas. However, it did raise a number of potential problems. One issue that was already appreciated was the problem of defining a vanpool for UK taxation purposes. Michael Norvell felt that the tax treatment of vanpooling was a key factor in stopping its development in the UK, and some companies interviewed simply did not know what a vanpool was. How to distinguish between a vanpool van and a company car also remains a key difficulty. Carey Newson and Roger Vickerman agreed that defining a vanpool was problematic.

Several taxi operators were interviewed. Taxis were noted as having a big advantage of being attractive and 'immediate' alternative to car users. However, one operator noted that shared taxis have not been popular as people feel unsafe riding with strangers. This attitude might be different for work colleague, but Vodafone has tried shared taxis and found that *"English people are fairly reluctant to share 'car space' with others, especially strangers"*. Another operator (Trevor Hines, Sunderland) mentioned the problems of splitting fares for trips of different distances. Halifax simply felt that for taxis the allowance would not stretch to many trips. Carey Newson and Roger Vickerman felt shared taxis are a good idea, but there would be a danger, in some circumstances, of them abstracting patronage from public bus services.

Overall a viable tax definition of vanpooling remains elusive. The tax concession appears useful, but some issues remain. Some of these are considered again under the travel voucher proposal, which includes taxis.

Evaluation

Our assessment of this proposal against the set of objectives and criteria developed to evaluate the tax proposals is shown in the matrix below.

Regarding tax cost, it is assumed that this measure is for shared taxis only. Following the method used to evaluate previous proposals, this measure might be assumed to be used more in urban fringe and rural areas. The National Travel Survey indicates that 80% (10.5million) of car driver commuters, live in rural and urban areas outside London and the large conurbations. Although far from all these are 'urban fringe', it still shows the importance of measures that address such areas of intense car commuting. Furthermore, public transport use is very low in such areas, accounting for only 100,000 commuting trips in rural areas and 700,000 in smaller urban areas. The 'deadweight' cost of a tax concession targeted upon rural and urban fringe areas would thus be low.

Existing studies provide little indication of the effect of a tax concession to encourage modal shift to shared taxi. The following figures are therefore essentially exploratory to get an idea of the tax cost that might be involved. If it is assumed that 5% of rural/urban fringe employees were offered this benefit and that something like 8% of existing car drivers shifted to shared taxi, then it would reduce car trips by slightly over 27,000. Allowing for some transfers from public transport, walk and cycle, the total for tax relief would be about £12.5m. Again assuming a 20% cash income substitution, this would be reduced to £2.5m per annum. Because there is little 'deadweight' in this proposal, the tax cost per car trip diverted and per tonne of CO₂ reduced is low. If 20% income substitution is assumed the figure is £90 per car trip diverted and £70 per net tonne of CO₂ reduced (£90 net). If all tax relief is taken into account it would be £450 per car trip diverted and £350 per net tonne of CO₂ reduced (£450 net).

The total tax cost would increase proportionately for a higher level of uptake but, even allowing for their somewhat speculative nature, it is clear that measures targeted upon rural/urban fringe areas do represent good value for their policy effect.

Figure 4: C2 - Income tax concession of up to £600 p.a. for employer contracted shared taxi or vanpooling scheme.

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system.	
	cost reduction	Employees offered an affordable alternative to the car.	
	immediacy	Good.	
	flexibility	Flexible if introduced in parallel with public transport concession.	
	comprehensibility	Very understandable.	
Employer	administration effort	Possibly complicated to set up in first instance, but then fairly straightforward administratively – not a lot different to processing business travel expenses.	More people potentially liable to claim for travel to work than for business travel expenses.
	susceptibility to fraud		Would require contracts to distinguish vanpools/ shared taxis from company cars or lift giving. Need mechanism to prevent double counting (i.e. registering for both public transport and for this concession). Individuals could register for scheme and not use it, enabling the

			vehicle to be used as a company car.
	cost predictability	Not too bad once likely user levels established.	
	value for money	Good if parking provision can be reduced as a result.	Still an additional cost to the employer (albeit tax efficient).
	flexibility	Very flexible.	
Green transport provider	administration effort	Once system in place, should not be too complex. Merely involves validating a form while each trip being made.	Initially complex - contracts required.
	susceptibility to fraud		Monitoring regime required to prevent double counting (i.e. registering for both public transport and for this concession), and individuals from registering for the scheme but not using it, enabling the vehicle to be used as a company car.
	introduction costs		Contracts required, but if standardised should not be too complex or expensive.
	will it make money?	Creation of new market should provide valid alternative to the car where currently none exists.	May abstract trips from conventional public transport.
	flexibility		
	staff comprehension	Yes. If contract form is simple enough and standardised there should be little problem.	
Inland Revenue/ Treasury	auditability	As for business travel expenses currently.	
	administration effort	As for business travel expenses currently.	
	enforceability	As for business travel expenses currently.	
	equitability	Provide alternative to the car for rural areas or for early mornings /late evenings.	Requires 'interested' employer before employee benefits.
	effectiveness (see DETR objectives)	If widely publicised, yes.	
	targeting/deadweight	Vanpools/shared taxis more likely to appeal to car commuters than conventional public transport.	Tax incentives less geared to lower paid. Maybe some abstraction from conventional public transport.

	tax loss	Insignificant if low levels of cash substitution.	Overall low – under £10m.
DETR	reduce greenhouse gases	Small positive impact	Depends on take-up
	reduce air pollution	Small positive impact	Depends on take-up
	increase cycling levels		May reduce
	improve road safety	Small positive impact	Depends on take-up
	improve the Nation's health		Perhaps may reduce if walking/cycling much affected
	increase walking levels		May reduce
	increase use of public transport	Could lead to new form of public paratransit	A danger of negative impact on conventional services
	slow the growth in road traffic	A small but useful contribution	

C3) Employer provided Travel Vouchers up to £600pa

The above tax concessions could be integrated into a package measure permitting employers to issue up to £600 worth of vouchers a year per employee. This amount could be used flexibly on a range of specified 'greener' modes of travel. Employers would issue vouchers (in either paper or electronic form using stored value/smart cards) which would be redeemable against specific transport products. Employer could only issue up to £600 worth of vouchers per person in each financial year.

These vouchers would be redeemable against a number of specific travel types:

- Public Transport fares;
- Charges for community transport services;
- Vanpools;
- Shared taxi services;
- Contract bus services where a charge is levied; and
- Bicycles and bicycle safety equipment

Operators and other suppliers of 'greener' travel (e.g. Bike Shops) could offer additional paper or electronic vouchers as part of a loyalty/incentive scheme, such as the proposed 'Green Miles' initiative. There is thus the potential for even greater leverage as other bodies additional to the employers would be motivated to take part in the voucher system

There is an problem of 'leakage' with Travel Vouchers, in that an employee could accept the Vouchers, continue to drive to work and use them for leisure trips, pass them on to relatives or friends (or even sell them). To some extent this would merely disperse the modal shift effect and it would be in the interests of employers (who are funding the vouchers) to put in place systems to ensure they are used for their proper purpose. Electronic vouchers would be less prone to this problem, particularly if employers have Smart Cards that can only be used by the individual to whom they are given. This system could also be used by employers who charge for parking and provide an integrated Smart Card to pay for the parking but which could also be used to pay for 'greener' travel as well.

Further Targeting of Travel Vouchers

The project also examined whether it would be possible to further target a Travel Voucher Scheme to reduce 'deadweight' effects. One way would be to make the tax concession apply to where an employer had entered into an agreed programme of action with their Local Authority with the intention to reduce single driver commuting trips to a site by at least a 5% modal share in a 5 year period. This would mean that a tax exemption would only apply to 'serious' Travel Plans. The local authority could institute the exemption as part of a Section 106 planning agreement, or the employer could institute the process by presenting its Travel Plan to the LA for it to agree that it qualified for the tax exemption.

This possible variation has implications for central/local government relations. The difficulty of local government being able to exempt an employer from national taxation is a serious concern. A possible approach would be if the Treasury provided a fixed Travel Voucher quota. A local authority could bid for a Travel Voucher Allowance as part of its application for Local Transport Plan resources, with a joint DETR/Treasury team allocating the quota as part of their LTP evaluation process. This would be similar to the bids for local Travel Co-ordinators.

Interviewee Responses

The idea of providing travel vouchers, valid on a range of 'green commuting' services, was generally welcomed in principle in that it provided the flexibility needed by both employers and employees. However there were a number of important issues raised concerning the detailed design of a voucher scheme. Root and Vickerman felt the choice provided in a travel voucher type scheme was important, including the broad definition of public transport. However, Vickerman did not feel that this level of support would level the situation with parking support. This again raises the general point that even a wide tax measure like this requires other complementary actions.

Leakage

'Leakage' was again raised as a problem by several interviewees. This is where, for example, the individual receiving the travel voucher may carry on driving to work and use the vouchers for public transport or taxi travel for weekend leisure trips, or sold the vouchers to colleagues. The effect would be the generation of extra trips and reduce the impact on peak hour congestion. Views on such leakage varied. Public transport operators seemed not to worry saying there would still be modal shift effects, only that they would occur in different places and times. Some of our experts expressed the same view. However, most employers expressed a very different view. They were displeased at the thought of a tax reform that required them to pay money to staff to affect their commuting behaviour and not doing so. One (Vodafone) said "They might just use the vouchers at weekends but still drive to work". Some experts (including Barry Ubbles) agreed with this view.

As noted previously, the USA transit tax exemption includes daily tickets. We asked Bill Menczer, of the US Department of Transportation, about the 'day ticket problem'. He felt that vouchers ensured that the employer support went to transit, but this would not cover leakage into leisure trips. The implication was that if this was an issue to an employer, then it was up to them to police the use of allowances given to employees.

Halifax felt linking travel vouchers to car parking charges would address this problem. This suggests that one way forward might be to make the tax concession available only where employers charged staff for parking as part of an integrated scheme. It may be observed that this exemption would allow for an integrated scheme to be implemented with vouchers that could be used to either pay for car parking or public transport, as the value of car parking is already exempt from personal tax. To make the tax concession conditional upon charging for car parking would be a highly targeted measure, but would require some additional administration.

Phasing in Travel Vouchers

Several interviewees felt that a cap on the allowance makes sense. Amanda Root advocated introducing Travel Vouchers at a lower level than was suggested. Her research on then USA situation indicated that the largest impact comes from the first \$20 – 30 a month. However this is in the context of generally lower public transport fares than in the UK, with this allowance covering the cost of many transit passes. Even allowing for this, an introductory allowance of £250 per annum would be a useful measure and that for its impacts, could well be more cost-effective than a higher allowance.

Scope of Travel Vouchers

Astra Zeneca welcomed this proposal and emphasised that it should apply to all greener modes, noting the difficulty in getting suitable alternatives for staff commuting. As noted previously, they thought the cap limit of £600 to be too low.

Administration

The administration of the travel voucher system attracted widespread comment. Root strongly supported the pre-tax deduction method. It is simple, while any other system would be complex and the administration would put off employers, particularly smaller employers. Michael Norvell made the same point, and said that in the USA even vouchers can be viewed as an “unnecessary administrative hassle”. He noted that this legislation allows employers to pay pre-tax income to employees in cash for the purchase of public transport tickets for commuting. This contrast suggests that the tax concession should allow for both options. Vodafone liked the vouchers proposals because it did not involve the payroll and so were administratively simple to introduce. The view was also expressed that vouchers would have to be marketed carefully. Luncheon Vouchers tend to stigmatise users as being low paid, and this needs to be avoided for Travel Vouchers. “*They need to be ‘cool’*”.

Steven Stanbury, ACCOR Services, noted they had USA experience in travel vouchers, and feels ACCOR would develop a voucher product in the UK around a tax concession if granted. He noted that forgery would need to be considered, but that the issue is solvable. The key is making the administration simple. Some UK voucher schemes are overcomplex. The USA system works - the National Transport tokens used for concessionary fares by 950,000 people and 1,000 transport operators.

For taxi operators, it was noted that vouchers are already used as part of local authority schemes for people with disabilities, and so an administrative parallel exists. As for these, the view from taxi operators was that the take up of the voucher scheme would depend on how much business taxi drivers think it will generate, and most felt that a handling charge would be required.

Community Transport was included in this measure to extend the concession to services provided in rural areas and to disadvantaged groups. Keith Potter, of the Community Transport Association felt that vouchers would be no problem, but that the main problem for Community Transport is capital support. This is being helped by the Rural Bus Challenge. This suggests that vouchers could provide a useful supporting role for other Government initiatives to improve public transport in rural areas.

Daily Tickets

Again the issue of the concession being available to daily tickets arose. Amanda Root expressed the view that it is critical that Travel Vouchers be valid for occasional use and day tickets. She noted that the most common way this is arranged in the USA is through carnets. Marian Wilson, (Dublin Transportation Office) pointed out the importance of measures that would apply to people ‘e-working’ and other flexible working practices.

This was a continual comment on the public transport proposals (and arises again in the context of proposal F). The way forward seems to be the development of carnets, which are widely used outside the UK. A tax concession on carnets could help encourage their development.

An interesting comment came from Boots, where it was felt Travel Vouchers would allow them to scrap the direct contract bus services to their site and issue staff who needed to use buses Travel Vouchers instead. This comments reflected, and was an example of a general point to emerge in the interviews. This was that companies with Travel Plans often felt that they were doing a bus companies job for them and that whatever they did the problem of poor quality bus services remained. Travel Vouchers were thus seen as a mechanism that would put a stronger onus on bus operators to develop and market quality services.

Evaluation

Again it can be initially assumed that, in the immediate future, 5% of employees would be offered this benefit. It could be assumed that the flexible nature of the Travel Voucher benefit would make it applicable to all types of area and sizes of firms. Although there is an issue about inflexibility if daily tickets were not included, a 10% transfer of existing car drivers could be assumed. This therefore produces the same financial results as for proposal (B). Assuming the concession to average £500 a year, this represents £46m in tax relief (both employee and employers’ NICs at 42%). This would rise to £55m if the full £600 allowance were assumed. If 20% cash substitution were assumed, then tax loss

would be only £9m and the cost per single car occupancy trip diverted would be about £140 per year. Cost per net tonne of CO₂ reduced would be £110 (£140 net).

A higher take up would raise the tax costs (and modal shift) proportionately, with the maximum tax relief figure rising to £110m for a 10% coverage and £220m for a 20% coverage. Again, these are much higher levels than has been achieved elsewhere in practice and income substitution, although possible for some employers, seems likely to be low in the short term.

Figure 17: C3 - Employer provided travel vouchers up to £600pa.

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system. Granted travel vouchers on a regular basis, which are then spent on public transport instead of cash.	
	cost reduction	Financially benefit from using green modes.	
	immediacy	Very. Vouchers can be spent as soon as they are received.	
	flexibility	Extremely flexible. Potentially could be spent on range of green modes. Would allow travel blending.	
	comprehensibility	Very understandable.	
Employer	administration effort	Fairly straightforward administratively - those involved in scheme would be regularly sent their vouchers. Indeed, voucher provider could perform this service, in which case company would only have to register those interested.	
	susceptibility to fraud	No worse than for other employer benefits.	
	cost predictability	Employer should know value of vouchers bought month by month.	
	value for money	Good if parking provision can be reduced as a result. Relatively cheap – perhaps 3-5% of bought voucher service charge.	Still an additional cost to the employer (albeit tax efficient).
	flexibility	Can encourage a whole range of 'green travel options'.	
Green transport provider	administration effort	Not complex. Vouchers batched and sent off for remuneration.	
	susceptibility to fraud	No more fraud potential than current ticketing arrangements	
	introduction costs		Yes. Perhaps a 3-5% service charge on value of vouchers received.
	will it make money?	Effective cut in cost of	

		green modes should help noticeably stimulate their use.	
	flexibility	Just treated as cash.	
	staff comprehension	Yes. Vouchers are fairly common and accepted.	
Inland Revenue/ Treasury	auditability	No real problem, vouchers just treated as cash.	
	administration effort	No real problem, vouchers just treated as cash.	
	enforceability	No real problem, vouchers just treated as cash.	
	equitability	£600 limit means covers all city-wide passes except London, and yet still not encourage trip lengthening behaviour. Applies also to single journeys, and to several modes, so would work well in rural areas or for early mornings/late evenings.	Requires 'interested' employer before employee benefits.
	effectiveness (see DETR objectives)	If widely publicised.	
	targeting/deadweight	Possibly good if linked to removal of parking provision.	Would be used by existing public transport users, but would encourage some car commute trips to be made by other modes.
	tax loss	More likely to be an 'add on' benefit than when awarded through the payroll mechanism.	Depending on cash substitution, could range from £10 - £100m
DETR	reduce greenhouse gases	Small positive impact	
	reduce air pollution	Small positive impact	
	increase cycling levels		May reduce
	improve road safety	Small positive impact	
	improve the Nation's health		May reduce if walk and cycle reduced
	increase walking levels		May reduce
	increase use of public transport	Could be locally substantial and important for previously marginal services, especially in less densely populated areas.	
	slow the growth in road traffic	A small but useful contribution	

D) Income tax concession of up to £600 per person per annum as a reward for giving up a parking space - parking cash out exemption

One method of encouraging car users to use alternative travel methods, would be to financially reward them every time they left their car at home, up to a tax free monthly limit of £50. This would provide positive way for employers to implement parking charges if they wished to do so. Under such a provision, the employer would issue all employees with electronic (or stored value paper) parking card, without which employees would be unable to park. Parking machine or operatives would deduct

points/credits from card every day the car passes through the barrier into the car park and any value left in card at the end of the year would be added to the employee's post-tax salary.

A key advantage of such a mechanism is that it would provide a tax incentive for any alternative to single occupancy car use. This is important because it is difficult to devise a tax incentive for some more sustainable methods of commuting, particularly walking, cycling, telecommuting and car sharing. The advantage of this mechanism is that these are not left out. This mechanism would also be good for encouraging the occasional use of greener modes and of occasional homeworking.

Interviewee Responses

Halifax thought this a good idea, particularly as it would encourage teleworking etc. But it has a number of loose ends, in particular there is the need to control parking outside a site. John Elliott felt that £500 a year would be needed and supported the idea. Vodafone recognised that parking cost them a lot (between £200 and £1,000 per space per annum on various sites) but pointed out that there would be costs in putting in barriers and systems for a cashout scheme.

Both Roger Vickerman and Carey Newson were concerned that this presented an 'all or nothing' choice, whereas in reality most people would prefer to retain the option to use the car on some occasions. When integrated with a travel vouchers scheme, this reform would provide the flexibility required. For example where an employer uses a smartcard which can be used to pay for parking, public transport or for cycle repairs, and any balance left over represents the cashout. A parking cashout tax concession might be most useful if it were restricted specifically to this situation.

Evaluation

Evidence for the impact of parking cashout payments is that they can reduce single occupancy car commuting by a large amount, as they promote car sharing, walking and cycling as well as public transport. It is thus assumed that an 18% cut in single car occupancy is achieved where this measure is offered. However, the USA and Dutch evidence is that this benefit is only rarely offered and so more than a 5% takeup seems unlikely.

If this proposal were to cover 5% of employees it would involve a total of nearly £670m being paid to 1.1 million employees. At the full £600 allowance this would represent £280m per annum in tax relief. If 20% of this benefit substituted for cash income, then the tax cost would fall to £56 million and the cost per car trip diverted would be £480 and £370 per gross tonne of CO₂ reduced (£480 net). If it were assumed that the total sum were cash income substitution, the cost per car trip diverted would be £2,400 and £1,900 per gross tonne of CO₂ reduced (£2,400 net).

This measure is one where cash substitution seems a strong possibility, and where the 'deadweight' effect is widespread. However, in its favour is the much wider modal shift impact. If this measure could be used in a way less likely to produce cash income substitution, it could be a very effective tax reform, but the Government would have to accept a potentially significant tax loss bill ranging (in the longer term and if take up were good) up to £500m. This is a measure that has very positive policy impacts, but the costs could range higher than for 'safer' and more predictable tax reform proposals.

Figure 18: D - Income tax concession of up to £600pa per person as a reward for giving up a parking space - parking cash out exemption.

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system. Cash for points calculated maybe monthly or annually, and paid in a similar fashion to business travel expenses.	
	cost reduction	Puts a cost on car parking, persuading some people to use greener modes.	

	immediacy	Makes green modes relatively cheaper to driving.	
	flexibility	Extremely flexible.	
	comprehensibility	Very understandable.	
Employer	administration effort	Fairly straightforward administratively – not a lot different to processing business travel expenses.	More people potentially liable to claim for travel to work than for business travel expenses. Requires parking management plan - parking barriers, smart card technology and possibly wardens.
	susceptibility to fraud	On one level, as easy as business travel expenses.	Requires parking management plan to be drawn up, probably in consultation with local authority and neighbours. This is so car drivers don't simply park nearby off site and walk in.
	cost predictability	Reasonable once approximate take up level is known.	
	value for money	Should lead to a reduction in number of parking spaces provided.	Still an additional cost to the employer (albeit tax efficient).
	flexibility	Can encourage a whole range of 'green travel options'.	
Green transport provider	administration effort	No involvement.	
	susceptibility to fraud	No involvement.	
	introduction costs	No cost as no involvement	
	will it make money?	Should significantly stimulate demand for alternatives to the car.	
	flexibility	Not applicable.	
	staff comprehension	Not applicable.	
Inland Revenue/ Treasury	auditability	As for business travel expenses currently.	
	administration effort	As for business travel expenses currently.	
	enforceability	As for business travel expenses currently.	.
	equitability	Parking spaces are already subsidised by the tax system. This measure partially redresses that.	Requires 'interested' employer before employee benefits.
	effectiveness (see DETR objectives)	In particular cases. Targets car use directly. Rewards all green commuters, including pedestrians,	Risk of cash substitution.

		cyclists, and car sharers. If implemented correctly, allows travel blending behaviour to be rewarded.	
	targeting/deadweight		Deadweight high
	tax loss	Seems unlikely to be taken up except in situations of acute need, so tax loss low	.A source of uncertainty
DETR	reduce greenhouse gases	Moderate impact	
	reduce air pollution	Moderate impact	
	increase cycling levels	Moderate increase	
	improve road safety	Positive impact	
	improve the Nation's health	Probable net positive impact	
	increase walking levels	Probable net positive impact	
	increase use of public transport	Potentially very positive	
	slow the growth in road traffic	A useful contribution	

E) A tax incentive for payments to other modes relative to the costs of parking

This proposal is not viewed as something that could be implemented immediately but might form a later phase of, or a longer-term, transport tax reform. Among our interviewees, this was felt to be an elegant idea, but many found difficulties with how it might be applied in practice. Barry Ubbles, of the Free University, Amsterdam, felt this to be an efficient approach and others considered that parking should be studied intensively

This proposal would extend the modal shift effects more widely than in the parking cashout proposal. The intended impact of the taxation concession is to encourage all organisations to develop parking management measures (a key element of a Travel Plan) and to reward those people who do not drive to work. The intention of this more radical measure is to instil in British society a more sustainable approach to travelling to work. The employer would need to have implemented a parking management system (e.g. a permit scheme) that keeps a record of those employees entitled to park on their premises. It would *not have to charge for parking* but may wish to as part of its Travel Plan. The parking management system introduced would however need to conform to specific DETR guidance on parking management to ensure consistency. A tax-free allowance would be applicable to all those people who did not have a parking permit, i.e. it would not apply to those people who drive to work. The tax allowance would effectively represent the cost of the subsidy currently provided to a majority of car driving employees (or has been provided for a considerable number of years in the past) through the provision of a free parking space. This concession makes it overt that car parking is tax-free and puts alternative modes on a clearly equal footing.

The main problem with this proposal regards the danger of on-street parking around a site. Such a measure would need to be combined with local authorities implementing local parking controls.

Evaluation

Overall, the impacts seem likely to be similar to parking cashout, so if this proposal were to cover 5% of employees it would represent £280m per annum in tax relief with the same cash substitution and deadweight' issues involved. Again, this is a measure that could have very positive policy impacts, but the costs could range higher than for 'safer' and more predictable tax reform proposals.

Figure 19: E - A tax incentive for payments to other modes relative to the costs of parking

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system - cash awarded, then pay as use parking spaces or public transport as usual.	
	cost reduction	Cash reward available for using alternatives to the car, but car parking space still available when needed.	
	immediacy		Payment only once a year.
	flexibility		Risk of 'locking in' people to parking over the tax year. Once decision taken to pay for parking space, incentive is to use it as much as possible.
	comprehensibility	Fairly understandable.	
Employer	administration effort	After initial set up, should be fairly straightforward.	Possibly complicated to set up in first instance.
	susceptibility to fraud		Would require fairly strict parking control regime. Most difficult where nearby cheap parking available.
	cost predictability	Payment only once a year, so very good.	
	value for money	Possibly good if parking spaces can be removed.	Still an additional cost to the employer (albeit tax efficient). Money needed to monitor parking and for general administration.
	flexibility		Not very flexible – once a year only.
Green transport provider	administration effort	None.	
	susceptibility to fraud	No extra problems.	
	introduction costs	No extra cost.	
	will it make money?	Public transport use effectively subsidised by employer, so increase should be significant.	
	flexibility	Good	
	staff comprehension	Nothing to understand.	
Inland Revenue/ Treasury	auditability	Good - one tax concession for all commuting.	
	administration effort	Simple once system in place.	
	enforceability	As easy as current system.	

	equitability	Yes, if applied on pro rata basis to casual, temporary and part-time staff too.	
	effectiveness (see DETR objectives)	If widely publicised, yes.	
	targeting/deadweight	High	
	tax loss	.	About £280m per annum at 5% take up
DETR	reduce greenhouse gases	Moderate impact	
	reduce air pollution	Moderate impact	
	increase cycling levels	Perhaps significantly	
	improve road safety	Perhaps significantly	
	improve the Nation's health	Probable positive net impact	
	increase walking levels	Perhaps significantly	
	increase use of public transport	Perhaps significantly	
	slow the growth in road traffic	Perhaps significantly	

F) General income tax concession of up to £600 per person per annum for the cost of public transport season ticket/travelcards

Rather than restricting tax concessions to only employer support, a general tax concession could be made. Two methods were considered for this exemption to be applied. A process whereby tax relief is provided at source was explored. This would be akin to the MIRAS mortgage tax relief system, where the provider enforced the limit to the amount an individual can claim according to rules set by the Treasury. Under this, taxpayers would be eligible to purchase Travelcards discounted for standard rate tax and employees' NICS. The operators would keep a record of sales and claim back the tax from the Inland Revenue. This method would have the distinct advantage of the tax relief being very visible in the reduced price of the ticket, but ensuring non-taxpayers did not receive the discounted price might require some additional administration. Initial discussions with our Inland Revenue advisors suggested that such a mechanism would not be acceptable, so other approaches were explored.

The system used in the USA is that employers would arrange for employees to pay for their public transport tickets by pre-tax salary deduction. Deductions of up to £600 per financial year would be permitted from pre-tax and NIC deducted income. Should employers choose to subsidise employee's public transport costs, then this system would automatically allow payments to be tax-free up to £600 per annum limit. Alternatively, if the use of pre-tax deductions proved to be difficult, a post tax deduction could be used, with a tax credit given.

As with Travel Vouchers, if this concession does not cover the occasional use of public transport involving the purchase of daily tickets, it would not be suitable for the 'travel blending' concept of many Travel Plans. It would be possible to extend this tax concession to use the same process to pay for Community Transport, Vanpool and Shared Taxis.

Interviewee Responses

Among our interviewees the view was expressed several times that for the Government to have its Integrated Transport Policy taken seriously would require more than tax concession linked only to employer Travel Plans. One commented on the Travel Plan only concessions that this involves the "company forking out for something the government wants – why should we?" This raises the related point that only the more serious and general tax concessions would elicit a widespread positive response from employers.

The reason for the use of a £600 cap was understood. Roger Vickerman agreed that land use effects of commuter trip lengthening are an important consideration. However, he noted that if there were no cap on a tax concession this could open up wider job opportunities to lower income groups.

Administration

There were a number of comments about the administration of the tax relief. Perhaps not surprisingly, employers preferred the operators to undertake the administration and operators preferred the employers to do so! Gordon Dewar (First Group) preferred the option of employees returning a valid receipt for a ticket to their employer. Any validation procedure would be messy when there is such a range of ticket outlets. Given that companies have payroll systems that are set up to reimburse expenses etc. this should be a minor administrative change. Halifax felt such a system to be feasible, but Vodafone, although agreeing the proposal is viable, noted that administration via the payroll would require altering procedures and would involve changing amounts for individuals each month.

Daily Tickets

Again, many interviewees raised the issue of any concession that applied only to weekly or longer season tickets/travelcards. Halifax emphasised the problem of this concession not addressing day and occasional users of public transport. It questioned whether it would have much effect. Gordon Dewar felt that smartcards could address this issue, but their general use was “a long way off”, but a tax scheme based carnet “may be a way round all of this.”

Evaluation

The major advantage of this proposal is that it would be available to all commuters and not depend on the willingness of employers to offer additional benefits. Any support offered by employers would provide additional impact.

In section 5 of this report, elasticity studies were reviewed that indicated that a general personal tax concession of £500 would raise public transport use for commuting by 7% and cut car use by 3%. A £600 allowance might therefore be expected to raise public transport commuting by 8.5% and cut car commuting by about 3.5%. The estimated tax relief cost of the £500 allowance was £650m a year, which would rise to £780m for a £600 allowance.

These figures may be compared with those resulting from the new data set used for the Stage 2 calculations. There are about 3 million public transport commuting trips, but not all of these involve season tickets or travelcards. The tax concession would involve both modal transfer from car, plus other effects like a shift from daily tickets to travelcards and some additional shifts from walk and bicycle. Overall it could be assumed that these together would raise public transport use to 3.5m commuting trips, which is a higher growth than was suggested in the general elasticity studies in section 5 of this report. The tax relief, at £600 per person, would amount to £860m per annum with a tax cost of about £2,200 per car driver trip diverted. This would represent £1,700 per gross tonne of CO₂ reduced (£2,200 net).

Figure 20: F - General income tax concession of up to £600p.a. for the cost of public transport season ticket/travelcards.

Perspectives	Objectives/criteria	Advantages	Disadvantages
Employee	administration effort	Straightforward system.	Need to remember to take form to be validated when buying ticket? Complex where refunds required.
	cost reduction	Effectively public transport 30% cheaper.	Only if worthwhile buying a season ticket.
	immediacy		Once a month of through payroll. Annually if through tax return.
	flexibility	Flexible if also applied to stored value non-transferrable ‘carnet’ style tickets.	Only if worthwhile buying a public transport season ticket.
	comprehensibility	Fairly understandable.	
Employer	administration effort	Fairly straightforward	More people

		administratively - not a lot different to processing business travel expenses.	potentially liable to claim for travel to work than for business travel expenses. Potentially complex where refunds arise.
	susceptibility to fraud	As with business travel expenses.	Again, potentially a larger volume of applicants to check.
	cost predictability	Should be straightforward to cost administrative time – same if one person or 10,000 take it up.	
	value for money	No real cost to employer – any administrative cost written off against corporation tax.	
	flexibility	Yes - easy admin tasks plus employer discount on ticket value should cover costs.	
Green transport provider	administration effort	Should not be too complex. Merely involves validating a form while season ticket being purchased.	Refunds potentially more difficult.
	susceptibility to fraud	No more fraud potential than current ticketing arrangements	
	introduction costs	Not really.	
	will it make money?	Should be. Minimal extra administration costs should be offset by a shift to season tickets (faster boarding times, cash up front etc.).	
	flexibility	Effective fare reduction of 30% should help stimulate usage.	
	staff comprehension	Yes. If form is simple enough and standardised there should be little problem.	
Inland Revenue/ Treasury	auditability	As for business travel expenses currently.	
	administration effort	As for business travel expenses currently.	
	enforceability	As for business travel expenses currently.	
	equitability	£600 limit means covers all city-wide passes except London, and yet still not encourage trip lengthening behaviour.	Only applies where public transport a realistic alternative - so no good in rural areas or for early mornings /late evenings. Only

		Available to all commuters – not just those employed by companies with a Travel Plan in place.	applies to season tickets - so occasional users not covered.
	effectiveness (see DETR objectives)	May expect to see 25%+ increase in public transport use, and a 7% fall in car use.	Tax incentives often not noticed by lower socio-economic groups.
	targeting/deadweight		Large amount of deadweight, particularly if only applicable to season tickets.
	tax loss		Cost for £600pa per person cap, estimated to be c.£880m
DETR	reduce greenhouse gases	Moderate impact	
	reduce air pollution	Moderate impact	
	increase cycling levels		Perhaps reduce
	improve road safety	Perhaps significantly	
	improve the Nation's health	Probable positive net impact	
	increase walking levels		Perhaps reduce
	increase use of public transport	By about 5%	
	slow the growth in road traffic	By about 2%	

Other Interview Themes

There were a number of issues that emerged in the interviews that either did not apply to a particular measure as such, or had implications across several measures. Some of these were very strategic in nature and related to the entire concept of tax concessions to support Travel Plans or to stimulate modal shift.

Perception of Travel Plan Policy

Halifax felt it was good to reduce the tax burden, but linking it to employer initiatives means that companies have to increase their expenditure in order for the tax cut to be achieved. They considered costs to be loaded on employers, which they viewed as unfair. In contrast, Vodafone felt the move towards tax relief for 'greener' commuting was a "very positive move for the Government" and was "a signal to employers that it is serious about trying to change behaviour". It mentioned the Paris *Versement Transports* local employment tax, paid by companies to gain a specific benefit, but in this case the link to improving public transport services is missing.

Benefits of Travel Plans not appreciated

The Halifax presented a strong view that Travel Plans are all cost – "company forking out" and commented that 'green' has little financial return. They showed no that a Travel Plan might save costs – and the who concept was very much perceived as a regulation imposing additional costs. However, staff retention was mentioned as an issue– an important motivation to companies provide good transport. The issue of the acceptance of Travel Plan measures as an accepted company responsibility is and important one, and one which is developed later in this report.

As well as under individual measures, administrative complexity was a general issue emphasised by employers. For example in the Agilent interview it was considered that all the proposed tax changes "would add to workload - and might not therefore be considered if extra staff had to be take on to deal with it. Definitely finding someone prepared to manage the process and the administration would be the biggest problem in its implementation." Again this is clearly in the context of there being no perceived benefit for Travel Plans.

In addition to the view that Travel Plans are 'all cost' there was an emerging view about how far Travel Plans could have an impact and get any further under present transport conditions in the UK. There was scepticism that nothing serious could be achieved without major improvements to the quality and coverage of public transport coupled with equally major changes to the tax treatment of 'greener' modes. There was a general opinion that further incremental changes to the tax system, although useful in a few cases, would be pretty ineffective as a whole.

Cash Substitution

Cash substitution is an important issue for this research project, and the issue has already been mentioned a number of times. There were very mixed views from employers as to whether Travel Plan benefits would be provided as a substitute for cash income.

Agilent expressed the view that if a measure was tax-free and of benefit to staff, the company might think about offering 'commuting benefit' instead of cash benefit. For Pfizer's parking cashout scheme, their Human Resources department wishes to clearly separate it from being part of the pay package. It is treated as additional to the remuneration package and is thus an extra cost to the company. Halifax had a similar view, cash substitution in general is not favoured and would not be for transport benefits. Vodafone had a different view. It felt that Vouchers were less likely to be offered as cash substitution and provided in addition to cash income. However, in the context of discussing the general tax relief measure (F), it felt that the substitution of commuting benefit for cash was inevitable, and would be the only way that measures would be adopted widely. To a large extent the interviewee was thinking of the longer term, and implying that, although the current attitude of Travel Plan benefits being in addition to cash salaries, in the future attitudes may well change. Vodafone's view was that the benefits of providing tax breaks on non-car commuting may well, in time, come to be viewed as a bonus part of an employment package. If widespread, Travel Plan benefits would become part of the employment culture and be a particular benefit to employers in tight labour markets, such as exists at the moment. When people change jobs, a reaction might be 'what, no travel subsidy?'.

This comment raises the point that there are long-term benefits of the tax changes. A cultural shift promoting a more positive response from both employers and employees can neither be expected immediately, nor is it likely if only minor and unintegrated tax changes are implemented.

An implication of this is that, in the short term, cash substitution seems unlikely, particularly of the voucher, contract carriage and other 'in-kind' proposals. If the tax concessions are successful, then cash substitution will emerge. This observation has important implications. It means that tax loss will only be incurred if the tax concession succeed in achieving modal shift and consolidating the use of alternatives to the car. If it is not successful, then the pressures for cash substitution will not arise. This suggests that to a large extent, further tax reforms will produce a win-win situation. There seems little danger of a tax concession costing the Government a lot of money and producing little policy effect. It will only result in a tax loss if it becomes widespread.

Incentivising Employers

Marian Wilson noted that the measures were aimed at personal tax. Could the tax system incentivise employers? Noted that planning requirements can do this. Roger Vickerman suggested having a tax concession for employers with Travel Plans. This project only examined employer costs relative to the the personal taxation regime (largely employer NICs) and so the main bulk of corporate taxation lay outside its remit. In general the need to incentivise employers did emerge through the interviews and remains an issue to be addressed by further actions.

Small Employers and Rural Areas

Travel Plans are presently something that only large companies do, and it is essential to devise stimuli and targeted measures that will be particularly attractive to SMEs. This relates to the issue of applicability to rural areas, because the issue is essentially one of Travel Plan measures that are applicable to small and dispersed flows and where start up costs are minimal.

Root particularly emphasised that a scheme should be 'so simple that harried small business managers find the service attractive'.

Some Key Conclusions

- It is important to design tax concessions that permit ‘travel blending’.
- Incremental changes to the tax system, although useful in restricted cases, will have little overall effectiveness
- A cultural shift promoting a more positive response from both employers and employees can neither be expected immediately, nor is it likely if only minor and unintegrated tax changes are implemented.
- In the short term, cash substitution seems unlikely, particularly of the voucher, contract carriage and other ‘in-kind’ proposals. If the tax concessions are successful, then cash substitution will emerge.

Summary of Tax Reforms Assessment

The following table presents an overall summary of the seven major proposals using a simple scoring mechanism from ++ (very good). + (good) +/- (mixed), - (poor) to – (very poor).

Figure 21: Summary of performance of the tax proposals

Perspectives	Objectives/criteria	Proposals						
		B	C1	C2	C3	D	E	F
Employee	administration effort	++	+	+	++	+	+	+
	cost reduction	+/-	+	+	+	++	++	+
	immediacy	++	+	+	++	+/-	+/-	+/-
	flexibility	++	+	+	++	++	++	-
	comprehensibility	++	++	++	++	++	++	+
Employer	administration effort	++	+	+	+	+/-	+/-	+
	susceptibility to fraud	++	+	+/-	+/-	+/-	+/-	++
	cost predictability	++	+	+/-	+	-	-	N/A
	value for money	+/-	+/-	+/-	+/-	+/-	+/-	++
	flexibility	++	+	+	++	+/-	+/-	+
Green transport provider	administration effort	++	+	+/-	+	++	++	++
	susceptibility to fraud	+	+	+/-	+	++	++	++
	introduction costs	+/-	+	+	++	++	++	++
	will it make money?	++	++	++	++	+	+	++
	flexibility	++	?	+	++	?	?	+
	staff comprehension	+	++	+	++	++	++	++
Inland Revenue/ Treasury	auditability	++	+	-	+	-	-	+
	administration effort	++	+	+/-	+	-	-	+
	enforceability	++	+	-	+	-	-	++
	equitability	++	+	+/-	+	+	+	+
	effectiveness (see DETR objectives)	++	+	+/-	+	++	++	+
	targeting/ deadweight	-	-	+/-	+	+/-	+/-	-
	tax loss	++	+/-	++	+/-	-	-	--
DETR	reduce greenhouse gases	+	+	+	+	+	+	+
	reduce air pollution	+	+	+	+	+	+	+
	increase cycling levels	-	-	-	+/-	+	+	-
	improve road safety	+	+	-	+	+	+	+
	improve the Nation's health	-	-	-	+/-	+	+	+/-
	increase walking levels	+	+	-	+	+	+	-

	increase use of public transport	++	++	-	++	++	++	++
	slow the growth in road traffic	+	+	+	+	+	+	++

From the analysis of the individual proposals above, it was clear that the issues centred on two aspects:

- 1) how to define what transport mode/activity (or combination thereof) should be eligible; and
- 2) how the measure would be delivered.

The following is a discussion of these aspects.

Eligible transport modes/activities

Walking and Cycling

Walking and cycling are probably the two ‘greenest’ commuting modes. Unfortunately, they are also very difficult to influence through the personal tax regime, unless the nature of the regime shifts from rewarding some green commuters to penalising car commuters.

This Government has done much for the tax treatment of cycle commuting and for business trips. This includes tax relief to employer-provided bicycles and safety equipment, the higher cycle business mileage rates and ability for people to claim this if they employer does not reimburse their expenses. It is hard to envisage any other major tax incentive for cycling.

Public transport

For public transport there are clearly a whole series of issues. Paramount is the need for a tax reform to cater for occasional as well as the regular use of public transport, which does present difficulties in designing and administratively simple, yet ‘leakproof’ mechanism. The contract carriage proposal (B) works best in this respect, but a general season ticket concession would be insufficiently flexible for policy and company needs. To a large extent this is not a problem of the tax system or Travel Plans. New ticketing products are needed if public transport is to be a viable option for the increasing number of people adopting new and flexible working practices (part-time, job share, teleworking, e-workers) To a large extent transport operators have ignored these important new trends, and do so at their peril as old fashioned season tickets and travelcards come to apply to a smaller and smaller market. Carnets and stored-value cards are not just new ways to address the same, declining, markets and which happen to be able to accommodate a tax reform. They are needed anyway. Possibly a tax reform could be useful in stimulating operators into action.

Taxi/minicab

Perhaps more controversial, would be extending the ‘public transport’ definition in this instance to taxis and/or minicabs. This is because taxis/minicabs are often perceived to be ‘a car by another name’ or even less environmentally efficient than cars, given that for much of the time they run around ‘empty’ searching for customers.

However, particularly in rural and other areas not well served by buses, taxis can fulfil an important role as part of the integrated transport mix, especially for those without access to a car. Moreover, company organised shared taxi arrangements should prove more acceptable to the public than shared taxi schemes in the past. Applying any concession only to shared taxis though would be difficult, but by having a cap on any concession means that unless people shared, their tax free allowance would not go far.

Car sharing/van pooling

Another difficult to apply/enforce concession, would be to encourage car sharing and/or van pooling. In many ways, encouraging people to car share or to van pool is probably one of the most effective ways for cutting car commuting in the short term. This is because one (or maybe both) trip ends are the same (the workplace), and the trip is still made in a car. Thus, while flexibility is reduced a little, the idea is largely seen as beneficial to users, as driver and passenger(s) share the costs, and usually the

stress of driving. As a result, many companies have now established car sharing databases to help groups find each other.

One risk here though, is that people who currently walk, cycle or use public transport may switch to becoming car passengers - something to be borne in mind.

Mechanisms to implement selected measures

There are several mechanisms by which the above proposals can be implemented. The following section identifies the strengths and weaknesses of each mechanism.

Payroll-based

There are potentially two mechanisms by which a payroll system could be introduced. The first, is for the employer to deduct some sort of ticket money from the pre-tax salary, while under the second process the employee would need to have a rebate form signed by an public transport operator when buying a ticket, and then claim the tax money back through their employer.

Pre-tax deduction would seem the simpler system to adopt. It is analogous to taking out pension contributions and theoretically involves fewer stages than the second method. As such, while employer administration may not be vastly different (either altering the payroll each month before tax is paid, or processing forms afterwards), employee hassle is far less, and there is no need for the employee to be out of pocket in the meantime. It has also been shown to work successfully across the United States. The problems with this system, are that companies were concerned that any payroll-based system would require a relatively large amount of resources to alter the payroll system on a monthly basis. Inland Revenue too, was not keen on the pre-tax payroll system, as there is no 'tradition' of removing monies from the pre-tax payroll in Britain.

As for the alternative, such a claim back system would be largely analogous to claiming back business expenses. The problems are that there would probably be far more people claiming back commuting expenses, while the system is a little less slick than deducting pre-tax.

Voucher-based

A voucher-based mechanism is another possible method for delivering tax concessions. Voucher systems already exist in many other fields (nurseries, asylum seekers, luncheon vouchers, concessionary taxi schemes) and in the USA for 'green commuting', vouchers are targeted on a whole range of identified services (e.g. almost any public transport ticket, taxis/minicabs, and even bicycle equipment). Experience, and the interviews, also suggest that vouchers would be less likely to be offered by companies instead of cash, thus reducing the cash substitution problem.

Bulk buy-based at company/group of companies level

The 'bulk-buy' option would essentially allow companies or groups of companies to contract a green transport provider to operate a service or network of services to transport their staff to and from work. The major advantages of this process, are that it is relatively simple to administer, monitor and (for the Inland Revenue) to enforce.

Claim back route (self-employed for example)

For other employers and for self-employed people (not all of home work at home), perhaps the most useful way to gain a green commuting concession is through the annual tax return form. Currently around nine million people submit tax returns in the UK. This should be relatively straightforward for anyone already using this system, and would be relatively easy for the Inland Revenue to administer.

Refining the 'Suite' of Tax Proposals

The intention of this report has been to present a 'suite' of taxation reforms, but it is clear that in developing, exploring and refining these seven measures that the preferred approach is to group them into an integrated package. They may be seen as three cumulative stages of taxation reform, and in the following discussion of this research, we will use this structure to identify key factors that the Government should consider when deciding how far their tax reforms should extend.

The first stage is essentially minor reforms to the existing taxation, to which could be added the Contract Carriage (B) proposal, which represents a development of existing tax exemptions and appears to have little tax loss potential. The second stage would involve some real tax loss to the Treasury, which would be adding the capped Travel Voucher and parking cash-out measures. The third stage would be, that where employers do not offer this benefit, for employees to claim against tax their greener commuting costs, up to a £600 per annum limit.

In summary, the four stages recommended are:

Stage 1: Minor Reforms

Minor Travel Plan Incentives

That benefits in kind up to £50 per employee per year be exempt where this involves goods and services provided by an employer in the furtherance of reducing single car occupancy commuting to the workplace.

Business Mileage Rates

In order to increase car occupancy on business trips that the driver and passenger mileage rates are rebalanced over a period of three years. In Year 1 it will shift from 40p car business mileage rate and an additional 2p passenger rate to 38p and 4p; in Year 2 to 38p and 6p and in Year 3 to 36p and 6p.

Itemising Car Parking in Local Business Tax Statements

It is recommended that this proposal be adopted as an informational instrument. It would reinforce other measures by making apparent the costs involved in providing parking for staff commuting. B)

Contract Carriage of Employees on Public Transport, Community Transport and Taxi/Minicabs

It is recommended that this be adopted for the range of modes suggested in proposal (B) in this report.

Stage 2: Additional Tax Incentives

This could be secured by either providing tax exemption on a specified range of 'greener' commuting modes, or by a cash-out mechanism on the non-green mode of single occupancy car commuting. A combination of the two would be possible.

Employer provided Travel Vouchers up to £600pa and contracted 'Green' Commuting services

This is a merger of proposals (B) and (C3)

It is suggested that rather than having separate allowances for individual 'greener' modes, an integrative tax concession is needed. There also appears to be a good case that this should not be a cash payment and a tax concession geared to the Voucher proposal (C3) seems most appropriate. However, it is necessary that, if an employer prefers to enter into a bulk contract with local transport providers they could do so. Thus it is suggested that the two could be combined into a multi-modal exemption that allows for two forms of delivery. This would allow maximum flexibility for employers to develop a mix of measures most suited to their situation. It is therefore recommended that employer 'green' commuting support, either through Travel Vouchers to a limit of £600 per person per annum, or as a bulk contract with operators, be exempt from personal taxation. The contract arrangements would cover the range of services as detailed in proposal (B) and the Travel Vouchers method of delivery would cover (up to the £600 limit):

- Weekly or longer public transport travel passes, season tickets, carnets and stored value tickets;
- Taxi services;
- Contract bus services where a charge is levied; and
- Purchase of bicycles and bicycle safety equipment

We could not identify a practical way to differentiate vanpools from company cars, but were a robust method developed, the option should be retained of adding this (or other categories) to the exemption.

Parking Cash-Out

Parking cash-out does appear to be an elegant solution and overcomes a lot of the problems associated with exemptions upon specific 'greener' modes (such as difficulties coping with daily tickets for public transport, occasional use of greener modes and not rewarding those who walk and cycle or telework). However, such an approach would only work where parking is within an employer's control (not on-street or provided by a third party) and where charges to employees are viable. It is therefore suggested that Parking Cash Out could be an optional alternative to Travel Vouchers and that, if an employer offered both, an employee could only have tax relief on one or the other.

It is also suggested that the granting of this concession might not be automatic, but granted by the Government Regional Office in consultation with the site's Local Authority, who should make an assessment of the on-street parking impacts of the measure.

Stage 3: General Tax Exemptions

In addition to the Stage 1 and 2 reforms, where employers do not offer this benefit, employees are able to claim against tax their greener commuting costs, up to a £600 limit. This would need to be via the tax form.

13. Discussion

As noted previously, the intention of this report has been to present a 'suite' of taxation reforms, together with an estimate of the policy benefits that could be obtained in return for any associated loss of taxation revenues. The sequence of the measures runs broadly from those that have little or no actual loss in tax revenue, through to those that would involve a significant tax loss. As was discussed in section 4 of this report, with the reduction of direct taxation being Government policy, the issue is more one of directing 'tax loss' as opposed to whether there should be tax loss at all. Thus a targeted cut of £500m to produce a positive transport policy outcome can be viewed as preferable to a general £500m tax cut with no particular synergy with other policy areas.

The suite of tax reforms presented in this report are provided to inform Government when they consider the amount of tax reduction they wish to direct towards the aim of effecting modal shift for commuting and (to a limited extent) business travel. The spectrum of reforms presented in this report allows for flexibility over how many proposals can be introduced, either together, or over a number of years.

Cost Effectiveness

In terms of cost effectiveness, the more targeted measures appear to buy more modal shift per £ of tax revenue foregone. These figures are sensitive to the extent that benefits are substituted for cash income, and the 'deadweight' of the benefit going to existing users, with some measure less prone to cash substitution than others. As has been previously noted, the 'deadweight' issue should be treated with care. Stopping modal shift away from 'greener' modes to the car is very necessary, so a tax concession to stop things getting worse is as vital as one trying to make things get better. This issue does not seem to be fully appreciated.

In terms of cost per car trip diverted, measures B, C1, C2 and C3 are all close together. The shared taxi scheme comes out well, although its range of costs do overlap the others in this group. This measure does have some policy risks (the whole idea is largely untried), but addresses car use in areas where public transport is usually no real alternative to the car.

Both Travel Vouchers and the Contract Carriage proposals come next in terms of cost effectiveness, with the former having a wider impact. Travel Vouchers are preferred for integrated transport policy reasons to tax relief on travelpasses and season tickets, which in any case are less cost effective. Parking cashout could be as (or more) cost effective as any of the above measures, but involves a degree of financial uncertainty. To a large extent this is because it rewards a wider range of 'green' modes (walking, cycling and teleworking) as well as public transport. This could well be a very effective policy option if well designed and promoted.

General tax relief on public transport season tickets and passes is the least focused and most costly all round. This is largely because there is no employer contribution, and were that estimated and added the figures would improve. However, it would have the most widespread impact and the total cost to the Treasury would be small compared to, for example, the stated cost of the November 2000 fuel tax and duty concessions.

Figure 22: Tax Relief, Tax Cost and Cost Effectiveness of the main reform proposals

	Cost per single occupancy car trip diverted	Cost per tonne of CO ₂ reduced	Tax Relief	Tax cost	Likely Possible levels of employees offered benefit (%)
B: Contract Carriage	£140 - £700	£110-£540 gross (£140 - £700 net)	£45m	£10m	5 – 10%
C1 Travelpasses	£160 - £800	£120 - £600 gross (£160 - £800 net)	£40m - £190m	£7 - £80m	10 – 20%
C2 Shared Taxi	£90 -£450	£70 - £350 gross (£90 - £450 net)	£12.5m	£2.5m	5-10%
C3 Travel Vouchers	£140 - £700	£110 -£540 gross (£140-£700 net)	£46 - £220	£9 – c£200m	10 – 20%
D Parking Cashout	£480 - £2,400	£370 - £1,900 gross (£480 - £2,400 net)	£280 - £500m	£56 - £500m	5%
E General	£2,200	£1,700 gross (£2,200 net)	£860m	£860m	100%

In combining measures, as will be considered later in this section, the tax relief and cost figures should not be added together, for use of tax relief in one mechanism would substitute for another.

It is interesting to compare the figures per tonne of CO₂ reduced to those of the Canadian study reviewed earlier which also looked at tax-free transit incentives (IBI Group, 2000). They came out with a range of £200 - £400 per gross tonne of CO₂ reduced, with our study suggesting a range of £110 - £600 for similar measures. The Canadian figures fall comfortably within the ranges estimated in this study and provide some verification of this study's results.

Step by step evolution or a big bang?

A key question that arises is whether policy needs are best addressed by the gradual introduction of a range of tax measures, as has happened to date, or whether a major, high profile, change is needed in order to have any real impact. There is evidence from this research on deciding between a 'step by step' or 'big bang' approach.

There are key lessons in this research about the relationship between policy design and the effectiveness and tax-loss cost of Travel Plan measures. As well as the UK interview work, we sought to follow up the wider Stage 1 research and particularly contacted key people and examined research findings from the USA and the Netherlands. It is useful to report this further international work now as it provides a good framework for interpreting and understanding our UK interviews. We have limited experience of using the personal taxation system to effect modal shift and there are few established Travel Plans in existence. The USA and Netherlands have a longer history than the UK of travel planning and the use of complementary personal tax reforms. In both countries, the personal taxation situation is such that the majority of the travel plan benefits that in Britain would be taxable are not taxable in these other countries. Thus one would expect the use by companies of such measures –

which have been shown to have a greater effect on modal split than encouragement/ promotional measures – to be significantly higher than it is here.

In the first instance, it is enlightening to look at how widespread is the use of Travel Plan measures that, in the UK, would be liable to personal taxation. Ligtermoet²² (1998) in his review of data from the Zuid Holland region of the Netherlands found between 1% and 3% of companies with Travel Plans implementing measures that would have been taxable in the UK. He cites further analysis of data from much of the Randstad which shows that the ratio of organisations implementing significant financial measures, compared to those implementing low cost measures such as carpooling and cycle promotion, is at best 1:9 and probably closer to 1:19. Thus, even in an environment that is “taxation friendly” for financial measures, the proportion of companies using these measures is very low – *most probably because they have to pay for them*.

In the case of the US, Giuliano and Hwang (1993)²³ analysed data from over 1,500 employers implementing plans as part of the mandatory travel plan programme in Southern California at the time. Their findings contrast strongly with the Dutch situation as documented by Ligtermoet, as they found that almost half of the employers offered financial incentives to those using public transport to commute, and 30% offered the same for carpoolers (at that time, a taxable benefit). However, this was in the context of an environment of mandatory travel planning.

Bill Menczer also provided further information on the effectiveness of transit benefit tax concessions. He cited data from a 1993 study by the Washington Metropolitan Area Transit Authority (WMATA). This found that 11.6% of Federal employees surveyed switched from single occupancy vehicle to transit in their journey-to-work when offered a \$60 transit pass each month. In 1999, the WMATA found that 26% of sampled recipients (both Federal and private sector employees) of this transit pass benefit had previously commuted to work using their private automobile. He felt it could be safely assumed that the modal shift impact would be at least that high in cities with comparable transit service coverage. We noted, in section 4 of this report, that in some situations a 50% level of ‘modal shifter’ was recorded amongst those receiving transit benefits. Thus we have a picture of tax-free transit benefits in the USA being both a widespread and an effective policy tool.

It is instructive that the USA has now largely abandoned regionwide mandatory requirements for Travel Plans. However, it maintains and has significantly enhanced tax concessions for the use of public transport. This indicates a move away from mandatory regulations towards a situation where reduced public transport costs *can* be part of a voluntary Travel Plan, but need not be. Indeed, for most of the employers that have adopted this see it not as part of a travel planning effort, but rather as part of a flexible benefits package, promoting choice for their employees.

Overall these results have important conclusions for our present study. Firstly, under the current policy of encouraging the voluntary adoption of Travel Plans (albeit in some cases being reinforced by planning consent requirement), the use of direct employer subsidy to their staff’s public transport costs will be very limited. The Dutch evidence suggests that, even were such measures to be the subject of a tax exemption, only between 5% and 10% of Travel Plans include such measures. The reason is simply cost, and as our interviewees have indicated, under present circumstances, companies are unwilling to devote major resources to Travel Plans. Only if facing particularly difficult circumstances will they consider the high-cost measures that currently also carry a taxation penalty. The only exceptions are the Minor Reforms (A), but this predominant attitude would apply to all the other Employer-provided, Travel Plan proposals.

But why then has there been a more widespread use of high-cost Transit and Vanpool benefits in the USA? To begin with the mandatory nature of their TDM programs clearly was the deciding factor, but they have continued to have a high uptake because of substitution for cash income. What has happened is that the 20 year period of mandatory TDM Travel Plans, together with associated tax incentives, resulted in these programmes shifting from being viewed as an unfortunately necessary cost to a useful, tax-efficient, part of the remuneration package.

²² Ligtermoet, T. (1998) *Status: Kansrijk* Report to Netherlands Ministry of Transport

²³ Giuliano, G. and Hwang, K. (1993) Employee Trip Reduction in Southern California: First Year Results, *Transportation Research A* 27A:2 pp 125-137

These observations on the contrasting USA and Dutch situation show two possible paths that the UK may follow. The USA went for a 'big bang' (the mandatory requirement for TDM measures coupled with tax concessions) that eventually got effective Travel Plan benefits accepted. The Dutch started from a very different taxation position to the UK, in that all commuting expenses were tax deductible, but the *policy process* is very similar to ours in that it has involved a step-by-step evolutionary approach. They initially sought to put in place a series of concessions for a variety of 'greener' modes and travel substituting technologies. One lesson of the Dutch situation is that a whole range of piecemeal exemptions produces a complicated and messy situation where the modal shift impacts are generally small and dispersed. The result is that employers remain reluctant to pay for higher cost Travel Plan measures. Travel Plan benefits have remained an 'add-on' cost to business and so financial incentives, which when used are highly effective, only feature occasionally.

What is now happening is that the Dutch have now decided to move the whole process up to a more strategic level and, as part of a wider tax reduction strategy, have gone for the radical path of removing all car commuting concessions (as documented in the section 4 of this report). There is a lesson here that the incremental, step-by-step, approach can lead to inefficiency and that the level at which transport considerations are integrated into a general tax reduction policy needs to be much higher than usually happens in the UK. Thus something like general tax relief on a range of more sustainable commuting modes might be viewed as an alternative to a 1/2p cut in income tax.

There is a very major issue here that has to be faced by all UK policymakers and their advisors reading this report. We can follow the incremental approach; which would be cheap and safe in terms of tax cost, as it will result in little by way of income substitution. Equally it will result in a low use of direct financial incentives by employers. The USA, probably not by design, started with the 'big bang' of mandatory Travel Plans and now the tax loss of their TDM exemptions runs at about £150 - £200m a year, with income substitution playing an important role in companies' willingness to offer transit and vanpool benefits. The coverage of about a million employees is still not large, but is good in the auto-oriented USA context and the modal shift impacts among recipients is impressive.

It appears that Ireland has started to learn this lesson quickly. In the 1999 Finance Act, Ireland introduced an exemption from benefit-in-kind taxation for those people whose employers purchased public transport commuter tickets. Following a study of the take-up of the scheme and consultation amongst the Irish agencies involved, it was decided to lobby the Minister for Finance during preparation of Budget 2001 that when commuters individually purchase monthly or annual public transport commuter tickets, they may deduct the cost of these from their annual taxable income when calculating tax liability. This proposal was not accepted by the Minister for this year's (2001) budget. The idea will be put forward for re-consideration during preparation of Budget 2002.

Supporting, Stimulating or Securing Greener Commuting?

At the end of section 3 of this report, we identified three stages of tax reform measures. These three stages link in with the issues and discussion above. We have labelled these three strategies associated with the three stages of tax reform as measures that *Support*, *Stimulate* or *Secure* greener commuting.

Supporting Travel Plans

The first group consists of a range of useful targeted measures that will have little cash substitution effects and thus represent minimal or no cost to the Exchequer. In terms of the policy for the adoption and diffusion of Travel Plans, such 'incremental' measures will support Travel Plans and some other policies for modal shift, but will not in themselves play a significant role in stimulating their adoption. Such an approach would put less emphasis on the voluntary adoption of Travel Plans and more emphasis on more coercive regulatory and other fiscal policies to which employers could respond with a Travel Plan. Such policies would include the requirement for Travel Plans by government departments, an expectation that local authorities would have them, and possibly also other public bodies. Other key stimuli would involve local planning conditions, maximum parking standards, workplace parking charges, road user charges and reallocation of road space to 'greener' transport modes.

Because of their minimal cost to the Exchequer, no cost-effectiveness analysis is required for such measures, but qualitative evidence from the project's survey work will support the case that such reform measures would provide a useful supporting role to the development of Travel Plans.

Stimulating Travel Plans

The second group consists of taxation measures, which would themselves become an important stimulus for the voluntary adoption of Travel Plans. This would involve income substitution and through this, Travel Plans would be expected to move to become a mainstream part of the remuneration package. This will cost the Exchequer significant, although not very high, sums (of the order of £200m, which is an order of magnitude less than, for example, the cost of the November 2000 fuel tax concessions).

In our research we established two ways that tax reforms might be implemented. The first is to have a tax allowance that can be spent on an integrated package of 'greener' forms of travel (including Travel Vouchers). This is the approach adopted by the USA. Alternatively there can be a tax allowance on payments to reward non-car use – parking cash-out. The latter option would be particularly effective in encouraging teleworking and travel by walk and cycle, which cannot really be addressed by the first option.

Securing Green Commuting

Meanwhile a third group is where a tax reforming measure would apply to all commuters, and not just those with employers that operate a Travel Plan. Once again this could either be through a 'positive' measure of offering a capped general tax concession for commuting by 'greener' modes, or by increasing the cost of car commuting to more accurately reflect the full social cost of that activity (outside the scope of this study).

Obviously, there are advantages and disadvantages to the three approaches. The first 'incremental' approach would allow the Government to gradually implement various concessions as and when it feels the time is right, be relatively cheap to introduce, and could be focused almost exclusively on shifting car commuters to greener modes. But, such measures seem unlikely to have any than a marginal influence on the take up of Travel Plan by companies. They would also add more clauses and caveats to an increasingly complicated taxation structure.

The more substantial taxation reforms would send a very clear and environmentally positive signal that the Government was serious about encouraging commuters to switch to alternatives to car commuting, and would push Travel Plans into the consciousness of companies across the country. However, the cost of implementing such proposals would be significant, though not exorbitant, while a sizeable proportion of the money may be spent on 'deadweight'. Against this, while someone may currently walk, cycle or use public transport, tomorrow they may use the car, and it is a lot easier to persuade someone to remain a green commuter than to change back to being a green commuter after having used the car. Rewarding green commuting is a crucial element as well as rewarding modal shift.

The more substantial would also carry a risk of cash substitution, but as has been seen by USA experience, and was also mentioned in our interviews, as being a good thing and necessary to secure the widespread impact of the tax concession.

In contrast to increasing tax on petrol, or tightening further the rules on company cars, the idea of granting concessions to 'green commuters' was seen as a very positive way of encouraging car users to change their behaviour.

An Opportunity to Transform Attitudes

Our analysis highlights that Government has reached a decision point in its use of green commuting tax concessions. A decision needs to be taken as to whether tax reform is to provide a minor supporting role to other policies, or become a driver of Travel Plans, whereby green commuting benefits becoming an accepted part of company culture. We need to decide if the UK is going for a set of tax measures that will simply support the limited circumstances under which employers will offer direct financial benefits to 'green' the commuting of their staff, or whether policy is to go for a 'big bang' to transform attitudes among employers and result in a more widespread use of such measures.

14. References

- Bowden, C. (1999): A Study of the Role of taxation on the Effectiveness of Green Transport Plans, MPhil Thesis, University College London.
- COMSIS Corp (1994): *Cost Effectiveness of TDM Programs*: Working Paper # 2, prepared for TCRP, 1994
- CEC (1999): *Transport Research APAS Urban Transport: Effectiveness of measures influencing the levels of public transport use in urban areas*, DED DG Transport, Office for Official Publications of the European Commission, Luxembourg.
- Dargay J M and Hanly M (1999) Bus fare elasticities, Report to the Department of the Environment, Transport and the Regions, ESRC Transport Studies Unit, University College London, London, December.
- Department of the Environment, Transport and Regions (1998): *A New Deal for Transport: better for everyone*. Cm 3950, The Stationery Office, London, July.
- Department of the Environment, Transport and Regions (1999): *The Benefit of Green Transport Plans*, DETR, London, June.
- Fowkes A S et al (1992) Segmentation of the travel market in London and estimates of elasticities and Value of Travel Time, ITS Working Paper 345, University of Leeds. Leeds.
- Giuliano, G. and Hwang, K. (1993) Employee Trip Reduction in Southern California: First Year Results, *Transportation Research A* 27A:2 pp 125-137
- Goodwin P (1992) A review of new demand elasticities with special reference to short and long run effects of price changes, *Journal of Transport Economics and Policy*, 26(2) May, pp.155-170.
- Halcrow Fox (1993) London Congestion Charging: Review and specification of model elasticities, Leeds.
- Higgins, Thomas. J (1992): Parking taxes: effectiveness, legality and implementation. *Transportation* 19, pp 221-230.
- IBI Group (1999): *Tax Exempt Status for employer Provided Transit Benefits*, Final Report to Canadian National Climate Change Process, Transportation Issue Table, chaired by Transport Canada.
- Joseph, S (2000): *Will Government Really Develop a Taxation System which Effectively Protects the Environment? – Challenges, Opportunities and Pitfalls*. Presentation to QMW Seminar: Environment, Transport and Tax – developing the fiscal contribution to sustainability, London July 13th.
- Ligtermoet, M (1998): *Report on Mobility management in the Netherlands to Netherlands Ministry of Transport*. Netherlands Ministry of Transport.
- Litman, Todd (1997): *Employer Provided Transit Passes: a tax exempt benefit*, Victoria Transport Policy Institute, British Columbia, Canada.
- Noble, B and Potter, S (1998): Travel Patterns and Journey Purpose, pp 3-14 of *Transport Trends*, No 1, June, Department of the Environment, Transport and Regions, London.
- Osman, D. and Hobbs, G (1997): *The Impact of Tax Relief on Season Tickets*, London Transport Market Planning, October.
- Oum et al (1992) Concepts of price elasticities of transport demand and recent empirical estimates, *Journal of Transport Economics and Policy*, 26(2) May, pp.139-154.

Paaswell, Robert E. (1994): *Employee Commute Options Guidebook. Transportation Demand Management Strategies Technical Memorandum # 7*, University Transportation Research Center, New York, May.

Potter, Stephen, Rye, Tom and Smith, Mark (1998): *Tax and Green Transport Plans*, The Open University, Faculty of Technology, September.

Potter, Stephen (2000): Travelling Light, Theme 2 of T172 *Working with Our Environment: Technology for a Sustainable Future*, Open University Press, Milton Keynes

Preston J (1998) Public transport elasticities: Time for a re-think?, UTSG Annual Conference, University of York, January.

Root, Amanda (1999): *Measuring the Market for Travel Vouchers*, Working Paper, Transport Studies Unit, University of Oxford.

Root, Amanda (2000, forthcoming): *Policies to promote more sustainable public transport: a new approach*. Transport Policy.

Schreffler, E.N. and Organisational Coaching (1996) *Effective TDM at Worksites in the Netherlands and the U.S.* Report to Ministry of Transport and Public Works, Netherlands

Smith, Stephen (1995): *"Green" Taxes and Charges: Policy and Practice in Britain and Germany*. The Institute for Fiscal Studies, London, November.

Snape, John (1997): *Taxation Aspects of Commuter Plans*, paper for the Nottingham Commuter Planners Club, Nottingham Trent University (unpublished)

Tegner et al (1998) The demand for public transport trips in Stockholm County, Workshop 8, Economics and Institutions of Transport, Borlange, Sweden.

Transport Road Research Laboratory (1977) Factors affecting public transport patronage, Supplementary Report 413, TRRL, Crowthorne, Berkshire.

Transport Road Research Laboratory (1980) The demand for public transport, TRRL, Crowthorne, Berkshire.

United States General Accounting Office (1993): Transcript of testimony delivered by their Director, Transportation Issues, of the Resources, Community and Economic Division of the GAO to a Congressional Subcommittee on 23.09.93.

Van den Branden, T., Potter, S. Enoch, M and Ubbles, B (2000): *Fair and Efficient Pricing in Transport – The Role of Charges and Taxes*. Report for CEC TREN, Oscar Faber, Birmingham.

Wachs, Martin and Giuliano, Genevieve (1992): *Employee Transportation Coordinators: a new Profession in Southern California*. The University of California Transportation Center Working Paper 99, April.

15. Appendices

Appendix 1: Employers Interviewed

Allott and Lomax, Birmingham
Aglient Technologies, (City edge, South Queensferry Edinburgh)
Astra Zeneca
BAA Stanstead (Rural)
BAA Heathrow (City edge/suburban 3,500 staff but 67,000 in site Travel Plan)
Bass
Belfast City Council (without Travel Plan)
Body Shop (Littlehampton – edge of town, head office, 600 staff)
Boots (Suburban Nottingham)
BMW
Capital One (Financial Services, City Centre, 1,300 staff)
Countryside Agency, Cheltenham
Derriford Hospital, Plymouth
DHL, (Heathrow – 800-1,000 staff, industrial estate, city edge)
Eli Lilly (Pharmaceuticals, 500 staff, rural near Guildford)
Foster Wheeler Engineering, (Reading, Town-edge industrial estate)
Halifax
Hewlett Packard, Bristol (City edge industrial estate, 1,500 staff)
HSBC (Edinburgh)
Johnson and Johnson Medical (Small rural town in Yorkshire)
Manchester Airport (City edge)
Marks & Spencer (without Travel Plan)
National Grid (500 staff, edge of town/semi-rural)
Northern Foods
Nottingham City Council (City Centre, 2,500 staff)
Open University (Milton Keynes, suburban)
Orange Telecommunications (City edge, Bristol)
Oxford Radcliffe Hospital (Suburban)
Pfizer, Sandwich (Rural)
Portsmouth City Council (City centre)
Racal
Reading University (City edge)
Richard Rogers (Architects, under 100 staff, London)
Rolls-Royce Engines, Derby
Royal Bank of Scotland (HQ Buildings, Gyle Industrial Estate, West Edinburgh)
Standard Life, Edinburgh
Sheffield University, City centre
Smithkline Beecham
South Derbyshire Acute Hospital (Derby, 5,000 staff on two city sites)
Southampton Hospital
Stockley Park (Group Travel Plan)
Surrey County Council
University of Bath
University of Birmingham, suburban
University of Hertfordshire (Town edge, 2,000 staff, 18,000 students)
University of York, suburban
Vauxhall Motors, edge of Luton – large manufacturers – Travel Plan at very early stage
Vodafone (Newbury, 1,000 employees, market town)
Waitrose, Bracknell (1700 staff, retail headquarters, estate in town)

Appendix 2: Question Schedule for Stage 1 Telephone Survey

Interviewer instructions in italics.

This is expected to be undertaken by telephone. If using paper, fax or Email, send Part A first and then Part B so that the tax emphasis of the latter does not bias Part A responses.

It is suggested you say we are doing work for DETR on ways the Government could further support Travel Plans. We are asking questions on the measures introduced, considered and what influenced their effectiveness.

Notes should be made on each question, but tick boxes are provided in some cases to help you.

Section A:

1. Has your organisation any measures currently in place as part of a Travel Plan?
If YES: List briefly
If 'No', go to question 4 below
2. Which of your measures do you consider is the most effective in encouraging your workforce to opt for alternatives to the car? Why are these most effective?
If necessary limit to the 3 most effective
3. Which, if any, of the following does your Travel Plan include:
 - Subsidised season tickets or fares for staff ☐
 - Incentive bonus payments for participation in a Travel Plan measure ☐
 - Cash out of car parking rights ☐
 - Providing 'vanpool' type vehicles (may need to explain) ☐
 - Car parking charges ☐
 - Works buses ☐
 - Providing bicycles for staff ☐
4. Which, if any, of the above measures not currently in you Travel Plan would you be willing to consider including in any future Travel Plan?
5. Were any of the above measures considered but rejected by the company? If so, Why?

Roughly how long ago was that:

less than a year ago ☐

1-2 years ago ☐

more than 2 years ago? ☐

Section B:

6. Do any of the measures currently within your Travel Plan have tax implications for either your employees or the company?

If NO go to 9

If so, specify.

- Are the payments or benefits provided under the Travel Plan taxed as a benefits-in-kind?
 - Does the company pay any of its employees' personal tax on their Travel Plan benefits? If so, why?
 - Does the company pay employees more because of any tax employees may incur as a result of the benefits they receive under the Travel Plan? If so, why?
 - Are the costs to the company of the Travel Plan offset against profits for corporation tax?
7. Did you modify the design of the measures as a result of taxation considerations? If so in what way?
8. Do you believe that the current tax rules have had any impact upon the effectiveness of your Travel Plan measures (or, if you do not have a current plan in place, have the rules affected the likelihood of you introducing one in the near future)?

If so, what effects do you think there have been?

It is best if the respondents offered their own thoughts here, without any prompting

9. Has the company ever written to the DETR, Inland Revenue or other Government departments on the issue of taxation for advice or guidance? (Ask if you can have copies of correspondence).
10. Would your company be interested in further work we may undertake to explore potential tax changes in relation to Travel Plan measures?

(Could mention Stage 2 of this project)

Appendix 3: Tax Treatment of Employer Provided Commuting Benefits in the USA - Summary

Source: Environmental Protection Agency webpage

Recent changes in the federal tax code as it relates to commute benefit options provide increased incentives for Commuter Choice programs -- specifically for transit, vanpooling, and parking benefits. These provisions, amended by the Transportation Equity Act for the 21st Century (title 9 section 910, PL 105-178), are contained in the Internal Revenue Code Section 132(f). The IRS Code now gives employers and employees new ways to get tax savings in association with specified work commute benefits.

Under current law, qualified parking benefits, transit benefits and vanpool services are not subject to Federal taxes (up to specified limits). Employers may also offer Parking Cash Out, where employees can trade employer-paid parking spaces for cash or other qualified benefits. If the employee elects the cash option, it is taxable for that employee.

The New Tax Laws Mean:

Employees can receive the specified benefits for their work commutes in addition to compensation or in lieu of compensation (or a combination of the two) up to these Federal limits: *

- Up to \$175 monthly, \$2100/year, for parking at or near work site and transit facilities (Federal tax-free)
- Up to \$65 monthly, \$780/year, for public transit (Federal tax-free)
- Up to \$65 monthly, \$780/year, for vanpool services (Federal tax-free)

(For transit and vanpooling, this amount will increase to \$100/month for taxable years beginning after December 31, 2001.)

Note: Tax breaks on benefits only apply directly to transit, vanpool and parking benefits. It is important to understand that the more options that are available, the more employees will utilize the benefit, and the more tax savings will be realized by the company. Additionally, companies should understand that the cash option from Parking Cash Out and other monetary incentives (e.g., transportation subsidies excluding subsidized parking, transit, vanpools) are taxable for that employee. Further, the company must pay payroll taxes for that employee related to the cashed out parking spot. Subsidized parking and other transportation benefits do not become taxable if an employer offers them along with the parking cash out option. Although the tax laws do not specifically relate to benefits like telecommuting, carpooling, biking, walking, and other commute options, employers can always offer or encourage these choices. One way to provide an incentive for these options is through Parking Cash Out, where an employee can choose the cash benefit and commute by these alternative modes.

The relationships between tax benefits and how a benefit is offered to the employee are described on the next page, How Benefits Are Offered. These details are important.

* Any amount of benefit in excess of the Federal limits will be subject to Federal income and payroll taxes. In addition, States may apply taxes even when the Federal government does not.

Three Ways to Offer Commute Benefits:

1. Additional Benefit / In Addition to Compensation

An employee may receive the benefit in addition to their current wages. Specifically, they can receive transit, vanpool, and parking benefits completely free of all U.S. payroll and Federal income taxes up to specified limits. The employer pays for the benefit and receives a deduction from his/her Federal business income taxes for the value of the benefit. Neither the employer nor employee pays payroll taxes or other related payroll costs on the benefit.

Examples:

- Employer purchases a \$65 monthly subway or bus pass and gives it to the employee. Employee pays no payroll or income taxes on benefit. Employer pays no payroll taxes and deducts \$65 expense per month, or \$780 annually;
- Employer provides a free vanpooling service. Employer and employee experience same tax savings as above;
- Employer offers \$80 instead of the parking space (Parking Cash Out). Employee can take \$80 as taxable income or keep tax-free parking space. If employee elects \$80, payroll taxes will apply to both that employee and to employer. In either case, employer deducts \$80/month, or \$960/year, from Federal business income taxes for that employee's benefit.

2. Pre-Tax Benefit / In Lieu of Compensation

An employer may permit employees to set aside some of their income, before Federal taxes, to pay for qualified commutes. Employees may use this pre-tax income to pay for transit, vanpools, or parking. Employees would not pay Federal income taxes or payroll taxes on the amount they elect to set aside for the commute option, and employers would not pay U.S. payroll taxes since the amount is treated as a benefit rather than as taxable salary.

Example: Employee asks employer to set aside \$65 per month, \$780/year, of existing (pre-tax) salary for a subway or bus pass. Employee saves Federal payroll and income taxes on \$65 per month. Employer saves Federal payroll taxes on \$65 per month.

3. Cost-Sharing

An employer may share the cost of commuting to and from work with their employees. They could do this through a combination of numbers (1) and 2) above.

Example: Employer provides a \$35 transit pass. Employee asks employer to set aside \$30 per month from existing (pre-tax) salary. Employer saves payroll taxes on \$65/month and deducts the additional \$35/month expense. Employee saves on Federal payroll and income taxes for the \$65 benefit.

Note: Tax breaks on benefits only apply directly to transit, vanpool and parking benefits. It is important to understand that the more options that are available, the more employees will utilize the benefit, and the more tax savings will be realized by the company. Additionally, companies should understand that the cash option from Parking Cash Out and other monetary incentives (e.g., transportation subsidies excluding subsidized parking, transit, vanpools) are taxable for that employee. Further, the company must pay payroll taxes for that employee related to the cashed out parking spot. Subsidized parking and other transportation benefits do not become taxable if an employer offers them along with the parking cash out option. Although the tax laws do not specifically relate to benefits like telecommuting, carpooling, biking, walking, and other commute options, employers can always offer or encourage these choices. One way to provide an incentive for these options is through Parking Cash Out, where an employee can choose the cash benefit and commute by these alternative modes.

Appendix 4: Stage 2 Expert Panel

The intention of the Expert Panel is to have a group of people to comment upon work in progress and to help guide the project through to Stage 2. The intention has been to appoint experts from employers, who will have a good knowledge of the practicalities of Travel Plans (including travel co-ordinators), local authority officers dealing with the development of travel plans in their area, providers of travel plan services (e.g. public transport operators) and other researchers in the field. These people would complement the Inland Revenue and Treasury experts that are already associated with the project.

It is not intended that the panel would meet as such, but be a group of people upon whom the research team could draw for advice, comment and guidance.

Panel members:

Roger Vickerman, University of Kent at Canterbury
Malcolm Fergusson, Institute of European Environmental Policy
John Elliot, Pfizer
Tony Greyling IPPR
Michael Norvel, Vipre
Gordon Dewar, FirstGroup

The research team are also able to draw upon members of the Transport Taxation Group for advice and comment.

Appendix 5: Stage 2 In depth Interviews

The Interview Schedule used a semi-structured format. It consisted of the draft taxation proposals and a series of issues upon which the respondent was asked to focus as well as making suggestions and observations of their own.

For the Experts, the issues raised were:

- i. The possible influence of the tax measure upon transport and travel perceptions and attitudes;
- ii. Potential impact of the tax measure upon travel behaviour, particularly for commuting to work;
- iii. How organisations are likely to react;

- iv. Possible variations in uptake of the tax concession between different types of organisation /business, and any differences between the public and private sectors;
- v. Opportunities to make the tax reduction *visible*, for example on their payslip, so that it is evident that more sustainable travel behaviour is being rewarded;
- vi. Evaluation of the impact of potential travel consequences of the tax concession in relation to sustainable transport /development objectives. For example, is it likely to encourage people to commute further distances, locate in rural /edge of town areas;
- vii. Any other unintended consequences;
- viii. Although this is naturally part of sustainability criteria, it is worth considering independently the equitability of the proposed tax concessions and how could they be improved?
- ix. Does the proposal meet the general principles of taxation?
- x. Which proposals are most desirable from a transport policy point of view, and why?
- xi. Which proposals might be most desirable from the point of view of the Revenue?

Specific administrative complexities of these proposals for employers;

- xii. Potential administrative difficulties for the Inland Revenue;
- xiii. Any alterations to the proposals considered important prior to discussion with organisations or whether any of the proposals should be omitted;
- xiv. Any other proposals for changes to the personal taxation system that you think we should consider?

For operators, additional issues were:

- 1. Have you already worked with companies in any ways similar to those set out in the proposals, above?
 - 2. What new products would you have to develop to make any of these proposals work? Would these proposals, if implemented, make you any more likely to develop new products (e.g. a non-transferable carnet)
 - 3. Would the administrative work for operators associated with these proposals be justified by the additional revenue generated? If not, what evidence would be required to justify it to you?
 - 4. How could these new products be marketed and who should be responsible for marketing them?
- Refunded or lost season tickets would require additional administration under our proposals, to ensure that the tax concession was not claimed fraudulently. What proportion of your seasons are lost or refunded?

For employers, the key issues were:

- i. How might your organisation react to the introduction of this measure? For example might it result in Travel Plans moving from being a peripheral 'add-on' to being seen as part of the Human Resources function?
- ii. Would your company likely offer some form of 'commuting benefit' as a substitute for cash income?
- iii. Would you anticipate any specific administrative complexities of these proposals for your company?
- iv. Are there any other proposals for changes to the personal taxation system that you think we should consider?
- v. In what way do you consider the tax proposal will affect transport and travel perceptions and attitudes of your staff? Are there any key attitudes and perceptions involved?
- vi. What potential impact of the tax measure upon travel behaviour do you foresee at your company, particularly for commuting to work?
- vii. Would your company see the measures as being equitable and could the design of the measure be improved to make it more effective?

- viii. Can you see any ways that these tax proposals might not have the desired effect or could produce a counterproductive ‘loophole’?

Appendix 6: Experts, Operators and Employers Interviewed for Stage 2

Experts

Richard Armitage, Consultant
 Alistair Hanton, Transport Taxation Group
 Bill Menczer, US Department of Transportation
 Carey Newson, Transport 2000 (Co-ordinator of the Ground Floor Partnership)
 Amanda Root, Transport Studies Unit, University of Oxford
 Steven Stanbury, ACCOR Services
 Barry Ubbels, Free University of Amsterdam
 Roger Vickerman, University of Kent
 Marian Wilson, Dublin Transportation Office
 Derek Wright, Business Rate Manager, Cambridge City Council

Operators

Gordon Dewar, FirstGroup
 David Harley, Confederation of Passenger Transport
 Trevor Hines, Station Taxis, Sunderland and Northern Region Branch Secretary
 Michael Norvell, Vipre
 Keith Potter, Rural Transport Officer, Community Transport Association
 Jonathan Pugh, Association of Train Operating Companies
 Alec Stafford, Chairman of Stockport Taxi Company
 Ashington Taxis
 Independent Taxi operators, Northampton and Bedford

Employers

Mike McBride, Travel Co-ordinator, Agilent Technologies, South Queensferry, Edinburgh
 Ken Russell, Astra Zeneca
 Chris Hopkins and Graham Ligget, Vodafone
 John Elliott, Pfizer
 Ground Floor Partners Meeting, October 2000 (including Louise Baker, Orange, John Elliott, Pfizer, Mike Turner, Sainsburys and Ian McBeth, Boots)
 Martin Batt, James Lupton and Dave Edwards, Halifax Bank
 Louise Baker, Orange

Appendix 7: Estimated Distribution of the UK Workforce by Firm Size, Location and Modal Split

Table A: Number of People Employed in the UK Walking and Cycling to work by Firm Size and Location

	1 Walk			2 Bicycle		
	small firms	medium firms	large firms	small firms	medium firms	large firms
Central London	55,471	15,343	47,210	13,927	3,852	11,853
Outer London	47,936	13,259	40,796	25,256	6,986	21,495
Other conurbations	103,999	28,766	88,510	9,757	2,699	8,304
Other urban areas	713,247	197,281	607,018	213,170	58,962	181,421
Not urban areas	260,045	71,927	221,315	80,463	22,256	68,479
All areas	1,221,132	337,760	1,039,261	384,445	106,336	327,187

Table B: Number of People Employed in the UK Driving to work by Car/Van, Car/Van Passengers and Other Private Transport by Firm Size and Location

	3 Car/van driver			4 Car/van passenger		
	small firms	medium firms	large firms	small firms	medium firms	large firms
Central London	183,645	50,795	156,294	38,711	10,707	32,946
Outer London	355,137	98,229	302,244	44,327	12,260	37,725
Other conurbations	634,943	175,622	540,377	150,882	41,733	128,410
Other urban areas	3,636,755	1,005,911	3,095,110	725,191	200,584	617,184
Not urban areas	1,345,178	372,070	1,144,833	250,380	69,254	213,090
All areas	6,098,580	1,686,841	5,190,281	1,216,255	336,411	1,035,111

	5 Other private		
	small firms	medium firms	large firms
Central London	8,025	2,220	6,830
Outer London	1,288	356	1,097
Other conurbations	13,803	3,817	11,747
Other urban areas	92,573	25,605	78,785
Not urban areas	38,658	10,692	32,901
All areas	163,593	45,249	139,228

Table C: Number of People Employed in the UK Travelling to work by Stage and Non-local Bus by Firm Size and Location

	6 Stage bus			7 Non-local bus		
	small firms	medium firms	large firms	small firms	medium firms	large firms
Central London	74,827	20,697	63,683	944	261	803
Outer London	63,399	17,536	53,956	258	71	219
Other conurbations	163,019	45,090	138,740	2,380	658	2,025
Other urban areas	464,472	128,471	39,5295	2,527	698	2,150
Not urban areas	37,310	10,320	31,753	0	0	0
All areas	764,013	211,323	650,224	7,393	2,044	6,292

Table D: Number of People Employed in the UK Travelling to work by LT Underground, Surface Rail and Other Public Transport by Firm Size and Location

	8 LT Underground			9 Surface rail		
	small firms	medium firms	large firms	small firms	medium firms	large firms
Central London	137,616	38,064	117,120	207,487	57,390	176,584
Outer London	24,483	6,772	20,837	20,360	5,631	17,327
Other conurbations	2,380	658	2,025	59,734	16,522	50,837
Other urban areas	1,608	445	1,368	55,360	15,312	47,115
Not urban areas	0	0	0	8,316	2,300	7,077
All areas	163,122	45,119	138,827	338,827	93,718	288,364

10 Other public			
	small firms	medium firms	large firms
Central London	10,622	2,938	9,040
Outer London	2,577	7,136	2,193
Other conurbations	39,029	10,795	33,216
Other urban areas	50,076	13,850	42,618
Not urban areas	9,440	2,611	8,034
All areas	123,639	34,198	105,225

Appendix 8: Cost Effectiveness and Tax Relief/Cost Estimates

Note

It should be emphasised that the following estimates are not endorsed by DETR, the Inland Revenue or Treasury.

Some further points need to be made, which were discussed in the text, in particular:

- 1) These costings only look at implications for amounts of revenue received from income tax and National Insurance Contributions. The measures could also impact on other sources of revenue such as:
 - Corporation tax revenues in instances where benefits for employees are paid for by employers' organisations making lower profits than they otherwise would have done had the benefits not been provided.
 - Lower car fuel duty revenues (and revenues from VAT on fuel duty) due to car use being lower than it otherwise would have been.
 - Lower revenues from taxes associated with car ownership (eg. VED, insurance premium tax on car insurance policies) if car ownership is affected.
 - Higher revenues associated with taxes on public transport operations and VAT on bicycle sales.
- 2) In practice modal shift (and therefore its cost and environmental implications) is likely to be a process which accumulates over time. Therefore overall revenue costs and environmental benefits would be likely to increase over time after any of these policies is introduced.
- 3) Employers may in some instances finance the provision of the benefits through partial substitution for other forms of taxable remuneration rather than through complete substitution for other forms of taxable remuneration or through no such substitution at all. Such situations would not change the cost estimates, but the numbers of people affected would increase, which would affect the calculations

B: Contract Carriage

5% of employees are offered this benefit, which involves 650,000 car drivers and 135,000 existing public transport users²⁴ and 170,000 walkers/cyclists.

Those who receive benefit:

Existing public transport users	135,000
Modal transfer from car (10%)	65,000
Modal transfer from walk/cycle (10%)	17,000
TOTAL	217,000

Assume 20% is income substitution, then this involves 43,400 people @ £500, with a total benefit of £21.7m.

Tax relief is $£21.7 \times 0.42 = £9.1\text{m}$

Cost per car trip diverted is $£9.1\text{m} \div 65,000 = £140$

If all tax relief is assumed to be cash substitution, then tax costs are:
 $217,000 \text{ @ } £500 = £108\text{m} \times 0.42 = £46$

Cost per trip diverted would then be £700.

²⁴ This excludes a relatively small number in 'other public transport'.

C1 Travelpasses/Season Tickets

5% of employees are offered this benefit, which involves 650,000 car drivers and 135,000 existing public transport users and 170,000 walkers/cyclists.

Those who receive benefit (less flexible than contract carriage so assume lower transfers):

Existing public transport users	135,000
Modal transfer from car (8%)	52,000
Modal transfer from walk/cycle (4%)	6,800
TOTAL	193,800

Assume 20% is income substitution, then this involves 38,760 people @ £500, with a total benefit of £19.4m.

Tax relief is £19.4 x 0.42 = £8.2m

Cost per car trip diverted is £8.2m ÷ 52,000 = £160

C2 Shared Taxi

Data:

	Car Drivers	Public Transport	Walk/Cycle
Rural	2.8m	0.1m	0.8m
Other Urban	7.7m	0.7m	2.0m
TOTAL	10.5	0.8	2.8

Assume:

	Car Drivers	Public Transport	Walk/Cycle
Rural	2.8m	0.1m	0.8m
Urban Fringe	4.0m	0.35m	1.0m
TOTAL	6.8	0.45	1.8

5% of employees offered benefit:

340,000 car drivers (assume 8% transfer to taxi)	27,200
22,500 public transport users (20% transfer to taxi)	4,500
90,000 walk/cycle (20% transfer to taxi)	18,000
TOTAL	49,700

Tax value 49,700 @ £600 = £29.8m

Tax relief £29.8m x 0.42 = £12.5m

At 20% income substitution, tax loss is £2.5m.

Cost per car trip diverted is £90 at 20% income substitution and £450 at 100% income substitution.

C3 Travel Vouchers

5% of employees are offered this benefit, which involves 650,000 car drivers and 135,000 existing public transport users and 170,000 walkers/cyclists.

Those who receive benefit (less flexible than contract carriage so assume lower transfers):

Existing public transport users	135,000
Modal transfer from car (10%)	65,000
Modal transfer from walk/cycle (10%)	17,000
TOTAL	217,000

Assume 20% is income substitution, then this involves 43,400 people @ £500, with a total benefit of £21.7m.

Tax relief is $£21.7m \times 0.42 = £9.1m$

Cost per car trip diverted is $£9.1m \div 65,000 = £140$

At full £600 allowance and all income substitution:

$217,000 @ £600 = £130m \times 0.42 = £55m$

D Parking Cashout

5% of employees are offered this benefit, which involves 650,000 car drivers and all other employees (1.1m in total for 5%).

Assume an 18% reduction in car use, by 117,000.

Cost is $£600 \times 1.1m = £666m$

Tax Relief $£666m \times 0.42 = £280m$

Assume 20% is income substitution = £56m

Cost per car trip diverted is $£56m \div 117,000 = £480$

If all income substitution $£280m \div 117,000 = £2,400$

F General Tax Relief

3 million commute by all public transport. 3% cut in car use assumed = 390,000 on 12.976m car trips.

Assume Public Transport rises to 3.4m trips

3.4m @ £600 is £2,040m

Tax relief and cost is $£2,040m \times 0.42 = £857m$

Cost per car trip diverted is $£857m \div 390,000 = £2,197$.