

5. Taxation of fuel and the environment

Increases in the price of petrol over the past year have led to widespread objection about the rate at which road fuels are taxed in the UK. Although partly driven by increases in the world oil price, the increase in the price of petrol seems to have focused attention on the contribution of the tax rate on petrol to its current high price level. In the period from May 1997 to September 2000, there was a 37% increase in the price of unleaded petrol, of which 25 percentage points (around two-thirds of the increase) were due to increases in the tax rate.¹ The UK currently has the highest tax rate on petrol in the European Union. Table 5.1 shows the total tax (duty plus VAT) on unleaded petrol in a selection of OECD countries and the total tax as a percentage of the retail price for the first quarter of 2000.

Table 5.1. Tax on unleaded petrol in a selection of OECD countries, first quarter 2000

Country	Total tax (pence per litre)	Total tax as a % of retail price (%)
UK	58.6	77
Norway	54.6	70
France	46.8	73
Netherlands	46.4	68
Finland	46.0	69
Sweden	45.7	69
Denmark	44.6	68
Germany	42.5	71
Italy	42.4	68
Belgium	41.3	68
Japan	39.0	57
Austria	34.3	63
Switzerland	34.1	64
Ireland	31.5	63
Spain	29.1	62
Luxembourg	27.7	58
Portugal	24.9	51
Greece	24.3	56
Australia	17.4	53
US	7.1	24
Mexico	5.3	13

Source: *Energy Prices and Taxes Quarterly Statistics*, First Quarter 2000, International Energy Agency. Prices converted to sterling using September 2000 exchange rate.

Of these countries, the UK had the highest tax rate on unleaded petrol at the beginning of 2000, both in terms of the total tax per litre and the total tax expressed as a percentage of the retail price. Even in Norway, which had the next highest rate, total tax was 4 pence per litre lower than in the UK. Mexico

¹ From September 2000 to December 2000, there was a further 2% increase in the price of unleaded petrol.

and the US had the lowest tax rates – the total tax per litre in the UK is more than eight times greater than the rate in the US.

Protest groups have put pressure on the government to cut duty on petrol, claiming that the current high rate increases the cost of motoring to an unacceptable level and places a particular burden on groups that have little alternative but to use their cars. Environmental groups, on the other hand, would prefer to see the tax on petrol remain high because of the impact that motoring has on environmental problems such as global warming. As well as trying to meet environmental targets, the government relies on petrol duty for a significant proportion of its revenue – in 1999–2000, it raised £22.3 billion, which is almost 6% of total government revenue.²

The petrol tax debate has highlighted important issues surrounding the taxation of private motoring and issues of tax design in general, and these are discussed in Sections 5.1 and 5.2. Concern about environmental damage raises more general issues about other possible environmental taxes that could be used if the government is serious about wanting to protect the environment. Section 5.3 looks at other tax options for the government.

In the Pre-Budget Report, the government attempted to reduce the burden on motorists from the high price of fuel but at the same time improve environmental incentives. Section 5.4 discusses the announcements that were made and the extent to which they meet each of these two objectives.

5.1 The economics of tax design

Petrol is just one example of a number of goods that has a tax additional to VAT levied on it. Some of the economic issues that relate to fuel taxation are general ones that arise when we consider taxation of any good and some are specific to certain types of good whose consumption generates external social costs. Box 5.1 discusses these issues.

Even in theory, the issue of tax design is complex. Designing taxes in practice is even more complicated. For example, in the case of pollution, finding a suitable tax base is usually very difficult and, even if one is available, setting an optimal tax rate would require information that is very hard to obtain. Taxes on private motoring are good examples of the difficulties that arise in the issue of tax design.

² HM Treasury, *Financial Statement and Budget Report, March 2000*, Hc346, 2000.

Box 5.1. The economics of tax design

There are two principal reasons why taxes are levied at different rates on different goods. The first is to raise revenues in the manner that causes the least distortion. The second reason for taxing some goods more heavily than others arises when the consumption of certain goods generates external social costs (called externalities).

Efficiency

If markets are working correctly, they will ensure that resources in the economy are allocated in the most efficient manner. Applying taxes can change the prices of goods relative to each other, which will have an effect on consumers' demand for goods, thereby distorting choices. Therefore taxes on goods should be set so as to minimise the distortionary costs of any consequent changes in consumers' behaviour. Designing efficient taxes is extremely complicated, since changes in the price of one good can affect the demands for many other goods, but a general rule of thumb is to tax most highly those goods for which consumer demand is relatively unresponsive to price changes.

Externalities

Sometimes markets do not work correctly. One example of this is when the use of some goods is associated with social costs (or externalities) that are not directly charged for. As a result, these goods are too cheap, relative to other goods, and this often results in their overconsumption. One way to correct the prices of such goods relative to the prices of other goods is to tax them. In this case, the less people respond to increases in the price of a good following a tax change, the higher the tax that is needed to achieve a given reduction in consumption.

In order to correct the inefficiency caused by the failure of the market to work correctly, the tax must be levied as directly as possible on the externality. For example, one type of exhaust emission is nitrogen oxides, which can be transported over large distances before being deposited as acid rain. The damage caused by acid rain is the effect that we want to reduce. In theory, we would want to tax each individual according to the harm that they caused by contributing to acid rain. Clearly, this is impossible because it would require knowledge of exactly how much acid rain that individual caused and where the acid rain fell. It is very difficult to think of an alternative feasible tax that would proxy the direct tax exactly – even a tax on emissions of nitrogen oxides is not perfect, since the harm done by acid rain depends on where it falls.

5.2 Taxation of private motoring

In the UK, in addition to VAT, excise duty is imposed at a fixed rate per litre on petrol. The duty differs across the various types of petrol as Table 5.2 shows. Since 1993, and until recently, fuel duties have been increased each year by a fixed percentage above inflation. The Labour Government's first Budget, in July 1997, increased this duty 'escalator' from 5% to 6%. In the November 1999 Pre-Budget Report, the Chancellor announced that, in future, any changes to fuel duties would be made on a Budget-by-Budget basis.

Table 5.2. Duties on road fuels, March 2000

Fuel type	Duty (pence per litre)
Unleaded petrol	48.82
Higher octane unleaded petrol (including lead replacement petrol)	50.89
Ultra-low sulphur diesel	48.82

The other tax on private motoring in the UK is vehicle excise duty. VED is a lump-sum annual tax on car-ownership. The system that is currently in place sets two rates of VED – the full annual rate, which is currently £155 per vehicle, and a small-car rate of £100 which is paid by owners of vehicles with an engine size below 1,100cc. In the Pre-Budget Report, various changes were announced to the rates of petrol duty and VED, and these are discussed in Section 5.4.

From the government's point of view, one objective of these additional taxes on motoring is to raise revenue. In addition, motoring is one example of a good that involves not only private costs to the individual, such as the price of the car, insurance and petrol prices, but also additional costs that are not directly charged for, such as air and noise pollution, congestion and road damage. Imposing taxes on motoring in addition to VAT is also an attempt to raise the price the consumer pays for motoring to the level that more accurately reflects these additional social costs. The issues that arise when designing an optimal tax, both on revenue grounds and on the grounds of correcting for overconsumption of goods that involve additional social costs, were discussed in Box 5.1. How these issues relate to VED and petrol duty is discussed below.

Fuel duty

One of the government's objectives for a fuel tax is to raise revenue. Evidence suggests that, at least in the short run, people do not reduce the number of miles that they travel a great deal in response to increases in the price of petrol.³ This means that it is sensible, as a matter of efficient tax design (raising revenue in the least distorting way), to tax petrol more heavily than we tax other goods that we think are more price-sensitive. But this is only one

³ See D. J. Graham and S. Glaister, 'The demand for automobile fuel: a survey of elasticities', draft paper, under review in *Journal of Transport Economics and Policy*.

consideration – we also have to ask whether it is sensible to impose a fuel tax on environmental grounds.

Few people would dispute that there are grounds for taxing motoring for environmental reasons, but finding a suitable tax base and setting an appropriate level of the tax is difficult. Motoring is associated with a number of different pollutants and social costs. Most of the sources of pollution from motoring are extremely difficult to tax directly. Trying to tackle all of these sources of pollution by means of a single tax on fuel would only work well if all types of pollution and the harm done by them were linearly related to the amount of petrol used. In fact, the only pollutant that is directly proportional to the amount of fuel used, and for which the emission levels are approximately proportional to the harm caused, is carbon dioxide, which contributes to global warming. Most of the harm done by pollution from the car varies according to the place of emission, the time of day, the weather and how the pollution interacts with other pollutants, and measuring levels of these pollutants according to these factors would not be practical.

Even if it were possible to target pollutants directly, the actual environmental costs are extremely hard to quantify. Take carbon dioxide emissions as an example. Carbon dioxide emissions are reasonably well targeted by a tax on the quantity of fuel used, but in order to set the appropriate level of the tax, we need to know the social or environmental cost of carbon dioxide and this involves valuing global warming – something that is inherently uncertain.

The other important consideration when imposing a fuel tax on environmental grounds is that evidence shows that, in the short run, people are not very responsive to increases in the price of petrol.⁴ One recent estimate suggests that, for a 1% increase in the price of road fuel, there is a reduction in miles driven of ½%. This is not a very large response. In theory, this is not a problem – it just means that, in order to achieve a given reduction in miles travelled, the level of tax imposed on fuel has to be high. In practice, recent events have shown that a high tax rate on petrol may be politically unacceptable and may have undesirable distributional consequences, as discussed in Section 5.4.

Until the November 1999 Pre-Budget Report, a duty escalator was in place on road fuel which meant that, each year, fuel duty was increased by at least 6% in real terms. Apart from raising revenue, is there any rationale for having an escalator instead of deciding on any increase on a Budget-by-Budget basis? One reason is that it sends a clear message to motorists and manufacturers about the harmful consequences of motoring and could encourage the manufacture and purchase of more-fuel-efficient cars. When a motorist makes a decision as to what car to buy, it is a long-term purchase. If consumers know that fuel duties are set to increase in the future, they will be able to incorporate this information into their decision-making and, as a result, may purchase a more fuel-efficient car. If consumers believed that fuel duties were unlikely to be increased substantially in the future, the fuel efficiency of a car might be a less important factor in their decision-making.

⁴ See D. J. Graham and S. Glaister, 'The demand for automobile fuel: a survey of elasticities', draft paper, under review in *Journal of Transport Economics and Policy*.

Imposing a tax on fuel is administratively simple, and there are good reasons for taxing fuel more heavily on the grounds of efficient tax design and also on environmental grounds, but setting the appropriate level of the tax is difficult. The fact that motoring is associated with a whole host of environmental problems means that we can be certain that trying to address them all through a simple, largely undifferentiated fuel tax cannot be optimal. The other tax on private motoring is vehicle excise duty. To what extent, if any, does VED help meet environmental targets?

Vehicle excise duty

VED is a tax on car-ownership.⁵ It raises a relatively small amount of revenue for the government – in 1999–2000 VED on all types of vehicles (including goods vehicles) raised just under £5 billion.⁶ Simply owning a car does not create any environmental problems, and so using the ownership of a car as a basis on which to impose a tax is unlikely to reduce environmental damage. Once it is paid, VED does not affect the cost of an additional journey, although it does reduce car-owners' disposable incomes, which may to some extent reduce the number of journeys people make. VED may also indirectly affect pollution and congestion levels by deterring ownership of cars, although, at the current rate, it is not clear how large this effect might be.

Until June 1999, VED was levied at a fixed rate per vehicle, but the structure was changed in the 1999 Budget to include a lower rate for small cars. In the March 2000 Budget, further changes to the system were announced, which will come into effect from March 2001. First, the small-car threshold was increased from 1,100cc to 1,200cc and, second, a new system of 'graduated VED' for new cars was introduced. This involves placing cars in bands according to their rate of carbon dioxide emissions and charging VED accordingly. This system will apply only to new cars because detailed information about carbon dioxide emission performance is only available for new cars.

The idea behind these changes is that engine size and carbon dioxide emissions are proxies for fuel efficiency. When deciding on the type of car to buy, people should correctly take into account that a more fuel-efficient car will cost less to run per mile. If this is the case, carbon dioxide emissions may be better targeted by a fuel tax, rather than a graduated system of VED. But if there is evidence to suggest that future running costs, such as fuel efficiency, are not fully taken into account in consumers' car purchase choices, there may be a case for using the tax system to encourage people to buy more-fuel-efficient cars. By changing the structure of VED, it may be possible to create incentives for people to drive more-fuel-efficient cars, although this effect may not be very large since VED is small in relation to the cost of a car. The government hopes that the new system will send a clear signal to both manufacturers and consumers that fuel-efficient cars are more environmentally friendly.

⁵ VED is payable as long as the car is used on a public highway. No payment is due for very old vehicles.

⁶ HM Treasury, *Financial Statement and Budget Report, March 2000*, Hc346, 2000.

Designing an optimal tax system to address the social costs involved with any activity is extremely difficult, even when a suitable tax base is available, because of the difficulties in measuring those costs. In the case of motoring, it is even more difficult because, for many instances of environmental damage and other social costs associated with motoring, there is no suitable tax base available. One exception to this, where there is a more appropriate tax base available, is the case of congestion.

Congestion charging

Congestion is just one of the social costs associated with motoring and it may be possible to reduce congestion levels by imposing a congestion charge. Congestion charges have been introduced in some other countries. Usually, the schemes involve charging motorists to enter a fixed area in a city centre. Singapore introduced an area licence scheme in 1975 that charges vehicles to enter the city centre between certain times by requiring the purchase of daily or monthly permits which have to be displayed on the windscreen. Three Norwegian cities also charge vehicles to enter the centre, with payments being made either electronically, via the fitting of an electronic tag to the vehicle, or at a booth.

The principle behind congestion charging is the same as that behind taxing any of the social costs associated with motoring, i.e. the tax base should relate as closely as possible to the externality involved. In this case, an optimal congestion charge would relate the level of the charge to the level of congestion at a particular time. This would be rather complex and would require sophisticated technology to implement it.

If the technology to implement an optimal congestion charge is unavailable, any charge that is introduced should be linked as directly as possible to the level of congestion. For example, traffic levels during the night are almost certain to be lower than in morning and evening rush hours, so it would be sensible to charge people accordingly. Where a simple charge based on a fixed fee to enter an area in the city centre is the only practical option, the basis of the charge should be to make the cost of making an additional journey in a congested area more accurately reflect the social cost involved. Where a charge per journey is impractical but a charge for a fixed period of time could be implemented more easily, the length of time that the charge is based on should be related as closely as possible to the length of time involved in a single journey. This means, for example, that a daily charge would be more appropriate than an annual charge.

A simple system of congestion charging is currently under consideration by the Greater London Assembly. The proposal is to have a fixed charge of £5 per day for vehicles entering a zone in central London between 7am and 7pm. In London, congestion levels throughout the working day tend to be fairly constant,⁷ and so a congestion charge that is fixed during these hours would be fairly well targeted. In cities where congestion was only a problem during morning and evening rush hours, a congestion charge of this kind would not be as well targeted.

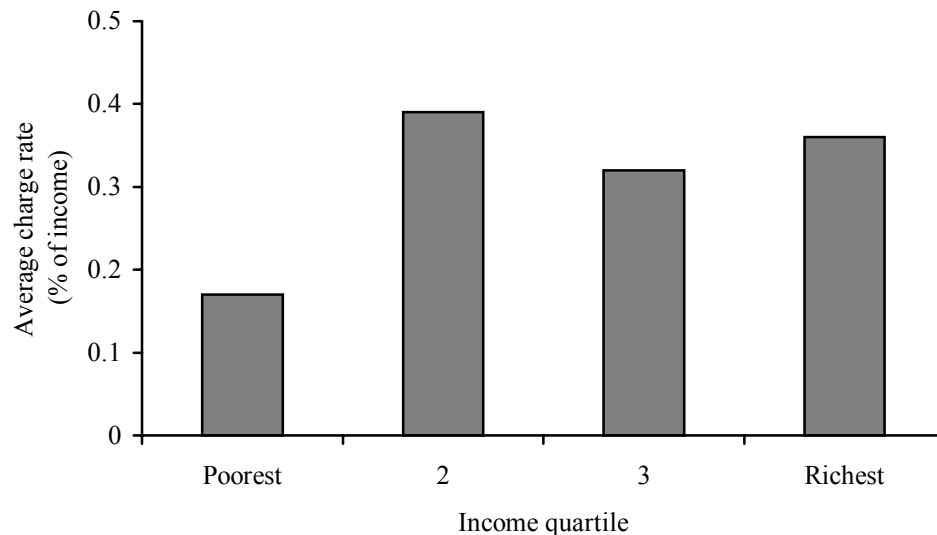
⁷ <http://www.go-london.gov.uk/transport/content.htm>

Although imposing an optimal congestion charge is likely to be highly impractical, some kind of simple approximation, such as the scheme that is proposed for London, is certainly more targeted towards reducing congestion than a fuel tax or VED.

Any tax or charge has distributional implications, and this is something that the Greater London Assembly has considered when thinking about the introduction of a congestion charge. The people who are most affected by the congestion charge are, of course, those who drive their cars most frequently into Central London from outside the charging area.

Figure 5.1 shows how the average charge as a percentage of income would vary with income.⁸ Households are divided into four equal groups according to their income, and the average congestion charge as a percentage of household income is shown. The graph shows, for example, that the poorest 25% of households would pay a charge that represented, on average, around 0.17% of their income. A tax or charge is described as being progressive if the amount paid as a proportion of income (the average tax or charge rate) increases as income increases. If the opposite is true – i.e. the average tax or charge rate falls as income increases – then the tax or charge is described as being regressive. Figure 5.1 shows that the households that would be most affected, on average, by the congestion charge are those whose income lies just below the middle of the distribution (quartile 2). On average, higher-income households are affected more than the lowest-income households.

Figure 5.1. Effect of the introduction of the proposed London congestion charge, by income group



Note: Income quartiles are derived by dividing the total population into four equal groups according to household income. Quartile 1 contains the poorest 25% of the population and quartile 4 contains the richest 25% of the population.

Sources: 1991 London Area Transport Study, which interviewed households living in the area within the M25; Family Expenditure Survey, 1997–98.

⁸ The following discussion is based on I. A. Crawford, *The Distributional Effects of the Proposed London Congestion Charging Scheme*, Briefing Note no. 11, IFS, 2000 (<http://www.ifs.org.uk/consume.gla.pdf>).

There are two important points to note regarding the distributional effect shown in Figure 5.1. First, within each quartile, the graph shows the average effect for households in that particular group. Within each group, there is likely to be a great deal of variation in the charge rate. Some households in each band will not own a car and so will not be affected at all by congestion charging, whereas others may drive their car into central London every day. Second, the numbers in Figure 5.1 do not take into account any possible change in driving behaviour that may occur as a result of introducing the congestion charge. There could be a number of different responses to the charge, and responses are likely to differ across the income distribution. Possible reactions to the charge include households reducing the number of times they travel into central London or substituting between different modes of transport. For households that reduce the number of journeys that they make by car into central London, the results shown give an upper bound on the incidence of the charge. There is, however, the possibility that the incentive to use the car is increased as a consequence of the reduction in congestion and so, for some households, the incidence of the charge could be higher than the liability shown in Figure 5.1. It should also be noted that the graph shows the distributional effect of a possible congestion charge in London. The distributional impact of the introduction of a congestion charge in any other city could be very different.

Congestion charging is a possible way forward for the government to improve incentives for motorists to behave in a more environmentally friendly way. It is not only motorists who do damage to the environment, though – there are many different sources of pollution in the UK and there might be scope for improving incentives in other sectors of the economy.

5.3 Other environmental taxes

One of the current major environmental concerns is carbon dioxide emissions, which contribute to global warming. Motoring is not the only source of carbon dioxide emissions. In the UK, road transport was forecast to account for only 21% of emissions in 2000.⁹ This clearly leaves scope for taxing other sectors of the economy. This section looks at the use of other environmental taxes.

Taxation of other fuels

Not all fuels are taxed equally. If it is the harmful effect of carbon dioxide that we want to address, then any fuel that produces carbon dioxide should be taxed according to the amount of carbon dioxide emissions it produces. The useful property of carbon dioxide emissions is that the level of emissions and the harm done are proportional to the amount of carbon in the fuel being burnt. Therefore a sensible policy would be to tax all types of fuel according to their carbon content. Domestic fuel is currently subject to a reduced rate of VAT of 5%. In the Spring Budget in 1993, the then Chancellor, Norman Lamont, announced the introduction of VAT on domestic fuel. After initially

⁹ DETR, *Climate Change: The UK Programme*, November 2000 (<http://www.environment.detr.gov.uk/climatechange/>).

introducing a rate of 8%, the original plan was to charge VAT at the full rate of 17.5%, but this plan was abandoned after widespread protest and the rate remained at 8%. In its first Budget, the Labour Government cut the rate to 5%.

The objections to levying VAT on domestic fuel are mainly distributional. In the UK, spending on domestic fuel is considered to be a necessity, and it makes up a larger proportion of the household budget of poorer households than of richer ones. Imposing a tax on domestic fuel would have a larger impact, as a proportion of income, on poorer households than on richer households. This does not mean that a tax on domestic fuel should not be imposed if it is believed that this is appropriate on environmental grounds, because any undesirable distributional consequences could be offset by compensating poorer households through the tax and benefit system.

A related issue is the tax treatment of energy-saving materials. From April 2000, the rate of VAT on certain energy-saving materials, such as insulation for walls, floors and roofs, was reduced from the full rate of 17.5% to the reduced rate of 5%. Prior to this date, while the reduced rate of VAT was applied to domestic fuel, the full rate was applied to energy-saving materials, which would distort the relative prices of these two types of goods. This would lead to people investing too little in energy-saving materials. Reducing the rate of VAT on insulation in order to bring it into line with the rate on domestic fuel therefore seems desirable.¹⁰

The other type of fuel that is subject to a relatively low level of tax is aviation fuel. There are two types of aviation fuel: aviation gasoline (avgas) is used in small privately owned aircraft and is subject to a rate of duty of 27 pence per litre, whereas aviation turbine kerosene (avtur) is used in commercial aircraft and no duty is levied on it. Air travel is currently taxed via air passenger duty. Passengers are charged £10 for flights to European countries and £20 elsewhere. The number of passengers is related to the size of the aircraft, and so is loosely linked to the amount of fuel used, but it is not an ideal tax base if the aim is to use air passenger duty as an environmental tax. It would be more sensible to tax aircraft fuel instead. The problem in the past has been the lack of international agreement to tax aircraft fuel. Because of the international nature of air travel, if the UK taxed aircraft fuel but other countries did not, it would be likely that aircraft would simply fill up in other countries to avoid the tax. If an international, or at least a European, agreement were made, taxing aircraft fuel would seem to be a sensible way forward.

The other major contribution to carbon dioxide emissions comes from the business sector. The government has made recent moves to address the levels of emissions in the business sector.

¹⁰ For more discussion on the tax treatment of energy-saving materials, see A. Dilnot and C. Giles (eds), *The IFS Green Budget: January 1998*, Commentary no. 67, IFS, London, pp. 86–9.

The climate change levy

Following the recommendations of the 1998 Marshall Report, *Economic Instruments and the Business Use of Energy*,¹¹ the government is introducing a tax on business sector energy usage in order to meet its greenhouse gas and carbon dioxide (CO₂) emissions targets. The climate change levy (CCL) on business sector energy usage will be introduced from April 2001. Concerns about adverse effects on international competitiveness have led to energy-intensive sectors being eligible for an 80% discount on the levy rates if they enter into a CCL Agreement with the government.¹²

The full social benefits of reducing greenhouse gas emissions, which firms may not take into account in their production decisions, provide a rationale for intervention to reduce emissions. In order to reduce emissions in practice, the use of a tax may have advantages over regulating emissions or the use of tradable permits. If governments had full information on firms' costs of emissions reduction, the socially optimal level of emissions could be achieved using any of these instruments. But because governments do not have perfect information about these costs, fiscal instruments may have advantages over regulation.¹³ A further advantage of taxes over regulation is that they produce incentives for firms to invest in emissions-reducing or more-energy-efficient technology. With regulation, there is no incentive to reduce emissions beyond the compliance level. In some circumstances, permits may have advantages over taxes – for example, when a specific level of emissions reduction needs to be guaranteed.

The UK government has committed itself to a legally binding target of reducing greenhouse gas emissions by 2008–12 to 12.5% below their 1990 levels. It has also set a domestic target of a reduction in CO₂ emissions to 20% below their 1990 levels by 2010. In 1990, the sectors covered by the levy – the business, public and agriculture sectors – accounted for around 36% of CO₂ emissions.¹⁴ The CCL will form part of a package of business sector emissions reduction measures, including the Integrated Pollution Prevention and Control Regulations and the proposed domestic and international emissions trading schemes. The levy will not apply to the domestic and transport sectors or to fuels used in the production of other forms of energy.

The introduction of the CCL is intended to be revenue-neutral. Revenue raised from the levy will be spent on a 0.3 percentage point cut in employer National Insurance contributions (NICs), 100% first-year capital allowances for investments in energy-saving technologies and the creation of an energy efficiency fund. The principal route for channelling the revenue back to the business sector is through the employer NICs reduction to 11.9%. The benefits of this cut will be skewed towards more-labour-intensive, and potentially less-

¹¹ Marshall Report, *Economic Instruments and the Business Use of Energy*, HM Treasury, London, 1998.

¹² These discounts are subject to European State Aids clearance.

¹³ For a detailed discussion of these issues, see L. Chennells and A. Dilnot (eds), *The IFS Green Budget: January 1999*, Commentary no. 76, IFS, London, 1999.

¹⁴ DETR, *Climate Change: The UK Programme*, November 2000 (<http://www.environment.detr.gov.uk/climatechange/>).

energy-intensive, sectors. The levy is expected to raise around £1 billion in 2001–02.¹⁵ The enhanced capital allowances are expected to cost around £100 million of that total, and £50 million is expected to be allocated to the energy efficiency fund.

Box 5.2. Climate change levy rates

0.07 pence/kWh for liquefied petroleum gas

0.15 pence/kWh for gas and coal

0.43 pence/kWh for electricity

Business sectors entering into CCL Agreements will receive an 80% discount on these rates.

The CCL has been scaled down since it was first announced, through a reduction in the rates of the levy. Those that will apply from April 2001 are shown in Box 5.2. The 1999 Budget stated that the levy would raise around £1.75 billion in its first full year. At that point, the proposed reduction in employer NICs was 0.5 of a percentage point.

The CCL will be applied to downstream energy bills, so the energy supply sector will be exempt. Ideally, it would be desirable to tax emissions directly, but, in practice, the levy will be based on energy usage. The proposed rates of the levy vary with fuel type. The effectiveness of the tax in inducing firms to undertake energy efficiency measures will depend on how responsive they are to changes in the costs of energy usage.

Many sectors will not be subject to the full rates of the levy. Firms in some sectors will be competing with firms that do not produce in the UK and are not subject to a tax on energy usage. This has raised concerns about the impact of the levy on international competitiveness. The major energy-using sectors – for example, chemicals and steel – have negotiated CCL Agreements with the government, in return for a discount on the levy. The agreements require that all ‘cost-effective energy efficiency measures’ are implemented by 2010, and contain intermediate targets and reviews before that date. If they agree to meet these targets, firms covered by the agreements will receive a reduction of 80% on the levy.

The difficulties of implementing environmental taxes on increasingly mobile business activities are illustrated by the CCL Agreements and reductions in the levy that will apply to the energy-intensive sectors. The ability of firms to relocate also demonstrates that, without international co-ordination, overall environmental aims may be difficult to achieve.

Emissions trading

The government is consulting on the design of a domestic emissions trading scheme for the UK. Firms will be able to join the emissions trading scheme voluntarily. Those outside the CCL Agreements will be given a financial

¹⁵ HM Treasury, *Financial Statement and Budget Report, March 2000*, Hc346, 2000.

incentive to agree emissions reductions targets.¹⁶ Firms within the CCL Agreements will be able to use emissions trading to help meet their targets. Once the scheme is up and running, the government plans for the electricity generators to participate.

5.4 Announcements in the Pre-Budget Report

In the November 2000 Pre-Budget Report, the government attempted to alleviate motorists' concerns about the cost of motoring and at the same time improve environmental incentives for motorists.

'Chancellor Gordon Brown announced today an affordable and targeted series of measures to help modernise road transport and increase choice for access to cheaper motoring for people who need to use their cars, while continuing to protect the environment'.¹⁷

How far will the measures that have been announced go in reducing the cost of motoring and, in particular, which groups of the population will be helped the most? Will the proposals help protect the environment in the way that the government aims? This section begins by discussing the measures aimed at private motorists. The fuel protests in September 2000 were led largely by parts of the haulage industry. The government was particularly sympathetic in the Pre-Budget Report to concerns of the UK haulage industry regarding the competition it faces from abroad and within the UK. This section also discusses the measures in the Pre-Budget Report that were aimed at hauliers, how far they are in keeping with environmental policy and whether they are likely to have an effect on the haulage industry.

Measures for private motorists

The only measure that was introduced in the last Pre-Budget Report (PBR) regarding the taxation of private motoring that is not subject to consultation was the freezing of all road fuel duties in nominal terms (which amounts to a real-terms cut), at a cost of £560 million in 2001–02. In addition to this, the government plans to reduce the duty on ultra-low sulphur petrol (ULSP) and ultra-low sulphur diesel (ULSD), which are considered to be more environmentally friendly than conventional fuels. The total cost of the cuts in duty announced in the PBR, if they were implemented, would be around £1.5 billion in 2001–02.¹⁸ The cuts are subject to consultation and are conditional on the oil companies guaranteeing nation-wide availability of ULSP. In the March 2000 Budget, it was announced that the duty rate on

¹⁶ £30 million has been allocated for this financial incentive (source: DETR, *A Greenhouse Gas Emissions Trading Scheme for the United Kingdom*, November 2000).

¹⁷ HM Treasury / DETR Press Release 1, *A Fair Deal for Transport and the Environment*, 8 November 2000.

¹⁸ HM Treasury / DETR Press Release 1, *A Fair Deal for Transport and the Environment*, 8 November 2000.

ULSP would be reduced by 1p on 1 October 2000 from its previous level, which was the same as that applied to conventional unleaded petrol. The announcement in the PBR was for a further cut of 2p. The duty rate on ULSD, which is currently taxed at the same rate as conventional unleaded petrol, will be cut by 3p if ULSP becomes available nation-wide. According to the UK Petroleum Industry Association,¹⁹ a large proportion of petrol retailers are already selling ULSP and the major retailers state that it is being sold at no extra cost compared with unleaded petrol. The other measure introduced regarding private motoring was an increase in the engine size threshold below which motorists pay a reduced rate of VED. Currently, the small-car threshold is 1,100cc, but there is already a pre-announcement due to come into effect in April 2001 which would increase the threshold to 1,200cc. In the PBR, it was increased again, to 1,500cc, but again this measure is subject to consultation. The combined cost of all the measures announced for motorists (including those measures that are subject to consultation) is nearly £2 billion in 2001–02.²⁰ More details of the cost to the exchequer of the measures announced in the Pre-Budget Report are contained in Table 3.9.

The environmental benefits of ULSP are clear. Emissions of many pollutants are reduced (particularly nitrogen oxides and carbon monoxide) and also, because of its low sulphur content, it enables the introduction of new petrol engine technologies that offer significant improvements in fuel efficiency. ULSP and conventional unleaded petrol are very close substitutes, and the previous experience of the duty differential between leaded and unleaded petrol tells us that a duty differential is likely to work well in encouraging the use of ULSP. The policy of a duty reduction on unleaded petrol worked well despite there being conversion costs in switching from leaded to unleaded petrol. Since there are no conversion costs to individuals in switching to ULSP from conventional unleaded petrol, people are likely to make the change much more quickly.

If the duty cut is fully passed on to consumers, this should result in motorists being able to buy cheaper petrol. Currently, there is only a 1p duty differential, and major retailers are selling ULSP at the same retail price as unleaded petrol. Increasing the differential should lead to a lower retail price if the duty cut is passed on to consumers. Cutting duty on a more environmentally friendly fuel to encourage its use highlights the problems with using a fuel tax to meet a number of environmental targets, not all of which are directly linked to fuel use. Although there will be lower levels of some pollutants, such as nitrogen dioxide, a fall in the price of petrol that could result from the duty cut in ULSP might encourage people to use their cars more. The result of this could be an increase in congestion levels, noise pollution and, until new engine technologies are introduced, carbon dioxide emissions. The same duty differential could have been achieved in a more environmentally friendly way by increasing the duty on unleaded whilst keeping the duty on ULSP unchanged. Introducing a duty cut, despite it being on cleaner fuel, is hard to describe as being environmentally friendly.

¹⁹ <http://www.ukpia.com>

²⁰ HM Treasury / DETR Press Release 1, *A Fair Deal for Transport and the Environment*, 8 November 2000.

The second announcement in the PBR was the increase in the small-car threshold from 1,200cc to 1,500cc. The government estimates that around a third of all cars will benefit from the lower rate of VED, at a cost of around £250 million a year over the next three years.²¹ The rationale behind the introduction of a small-car rate of VED (as described above) was to create an incentive for motorists to purchase smaller, more environmentally friendly cars. It may be of benefit if motorists do not fully take into account future fuel costs when they decide what type of car to buy. But increasing the small-car threshold reduces the incentive to buy the smallest, most-fuel-efficient cars relative to the system where the threshold is lower.

Neither of these measures for private motoring announced in the Pre-Budget Report can readily be regarded as being environmentally friendly. The other objective was to reduce the cost of motoring to alleviate motorists' concerns. The cut in VED was particularly aimed at helping those living in rural areas.

'... many, especially those in rural areas, have put it to me that greater choice would be available to rural motorists and motorists generally if the 55 pound deduction could be accessible for not just cars under 1200 cc, but for cars up to 1500 ccs ...'.²²

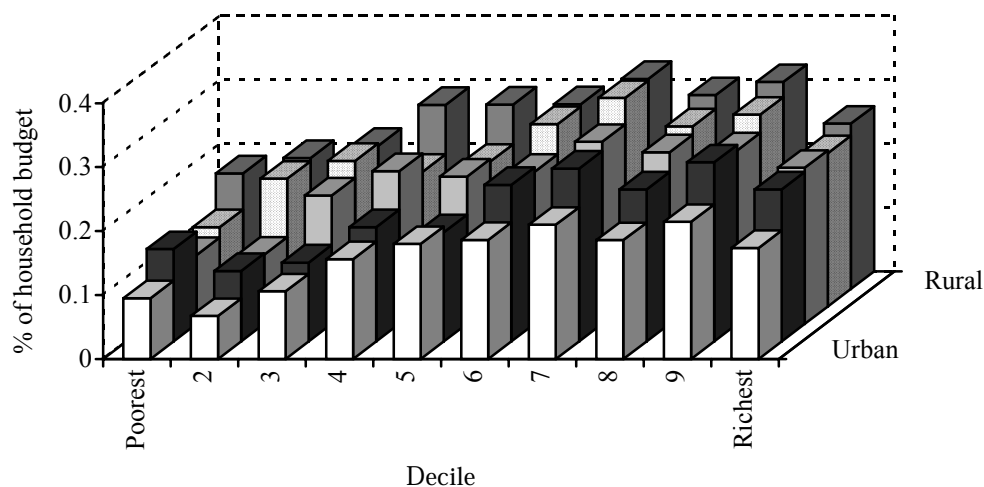
Households that gain the most from the proposed reduction in duty on ULSP are those for whom petrol makes up the largest proportion of the household budget. Figure 5.2 shows how the gains from the duty cut are distributed according to two characteristics – household income and population density. The white row at the front of the graph shows the average gain as a proportion of the household budget, by income decile, for those households living in the most urban areas. This shows that it is middle- to high-income households that gain the most from the proposal. The dark bars at the back show that the pattern remains similar for the most rural areas, with the largest gains in middle- to high-income households. Overall, it is middle- to high-income households living in rural areas that are set to gain the most from this proposal. Poorer households tend not to gain, as they are less likely to own a car than richer households.

Figure 5.3 shows the gains from all the changes in VED – both the changes that were pre-announced in the March 2000 Budget and the measures that were proposed in the November 2000 Pre-Budget Report – distributed according to the same two characteristics. This shows that the largest gains are amongst the poorest households living in the more rural areas. Taking together both the proposal relating to VED and the proposed cut in duty on ULSP, the households that gain the most are those from all income groups living in rural areas. Middle- to high-income households gain most from the cut in duty and low-income households gain most from the cut in VED.

²¹ HM Treasury / DETR Press Release 1, *A Fair Deal for Transport and the Environment*, 8 November 2000.

²² Statement by the Chancellor of the Exchequer on the Pre-Budget Report, 8 November 2000.

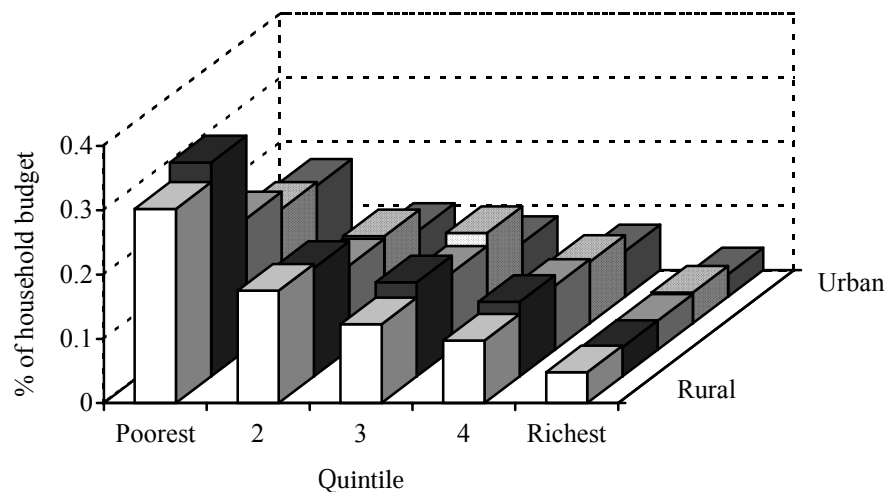
Figure 5.2. Gainers from the proposed cut in duty on ULSP, by household income and population density



Note: The boundary points for the income deciles are the same across population density. This means that there are different numbers of households in each income group across the areas of different population density.

Source: Family Expenditure Survey 1997–98.

Figure 5.3. Gainers from the changes to VED, by household income and population density



Note: The boundary points for the income quintiles are the same across population density. This means that there are different numbers of households in each income group across the areas of different population density.

Source: National Travel Survey 1996–98.

Measures for the haulage industry

There were a number of measures announced in the Pre-Budget Report that were aimed specifically at the haulage industry. One of the proposals is a reform of lorry VED, which is subject to consultation. The cuts are expected to cost around £300 million per year. Related to this proposal is a VED rebate for lorries for the current year of up to 50%. The government intends to set aside a fund of £100 million ('scrappage allowance') to offer an incentive for hauliers to scrap their older, more-polluting vehicles and to encourage cleaner lorries and technology. The other main announcement was the intention to introduce some form of road-user charging or 'BRIT disc' for foreign hauliers. Although all UK hauliers will also be subject to this charge, the government intends to prevent them being adversely affected by the new charge; the most likely compensation will be through a further cut in lorry VED. Apart from the VED rebates, all announcements are subject to consultation. If all measures were implemented, it would cost the government a total of £750 million a year.²³ Although the cut in duty on ULSD was not aimed specifically at the haulage industry since it applies to all vehicles that use diesel, it could be considered as such since 99% of lorries run on diesel.

There is a widespread view that there is overcapacity in the haulage industry and, as a result, it is highly competitive. UK hauliers therefore may not see much benefit from a cut in ULSD duty, since it is likely, in such a competitive industry, that any cut would be passed on to customers. Lowering the duty on this fuel cannot be justified on environmental grounds because almost 100% of the market in diesel is already accounted for by ULSD. In the Pre-Budget Report, the justification given for reducing duty on ULSD was to keep the rate in line with that on ULSP. But, as noted above, cutting the rate of duty on ULSP is difficult to describe as environmentally friendly. Cutting all rates of VED for lorries and creating stronger incentives for hauliers to use the least environmentally damaging vehicles may be more in keeping with environmental targets but might not help to reduce any overcapacity in the industry.

The government has not announced any details about the BRIT disc scheme but, according to the most recent information from the European Commission,²⁴ the maximum annual charges allowable are 1,550 Euros for the most-polluting vehicles and 1,250 Euros for the least-polluting lorries (around £1,000 and £800 respectively). There is no agreement on the difference in operating costs between the UK and other European countries. Duty on diesel is about twice as high in the UK as in France, but other operating costs, such as National Insurance and corporation tax, may offset this to a large extent. One of the complaints from parts of the haulage industry at the time of the fuel protests was that it faced direct competition from foreign hauliers who fill up their fuel tanks across the Channel to take advantage of lower fuel duty and then undertake business that takes place entirely in the UK. In fact, a survey undertaken by the Department of the Environment, Transport and the

²³ HM Treasury / DETR Press Release 1, *A Fair Deal for Transport and the Environment*, 8 November 2000.

²⁴ http://europa.eu.int/comm/transport/themes/land/english/lt_11_en.html#eurovignette

Regions²⁵ found that this activity, which is referred to as ‘cabotage’, accounts for only 0.06% of national transport, when national transport is measured by tonne-kilometres moved by UK registered vehicles in the UK. Even if UK hauliers faced a large amount of competition from this source, it is not certain that the BRIT disc charge would reduce competition since it would be a relatively small fee.

A more sensible announcement was the scrappage allowance. This will create a direct incentive for hauliers to replace their most environmentally damaging vehicles with newer, cleaner vehicles. It may also encourage some exit from the industry and so ease the overcapacity problem.

5.5 Conclusion

The recent debate surrounding the taxation of private motoring has succeeded in highlighting the complex nature of tax design in this area. One message that is clear is that trying to address a wide range of different social costs associated with motoring with a single tax cannot be optimal. In most cases, finding a suitable tax base is difficult, but where a more appropriate tax base is available, such as in relation to congestion, it would be sensible to move away from a fuel tax towards a more targeted tax. In the Pre-Budget Report, the government attempted to improve incentives for motorists to behave in a more environmentally friendly way. The extent to which this was achieved can, at best, be described as mixed.

Environmental issues are not restricted to motoring, and there is no reason to focus too heavily on a road fuel tax whilst ignoring the damaging effects on the environment caused by other sectors of the economy. In some respects, the government is beginning to address environmental issues in other ways through the introduction of the climate change levy, although there is still scope for improving incentives for environmentally friendly behaviour in the use of other fuels.

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²⁵ <http://www.transtat.detr.gov.uk/tables/2000/lorries/forlorry.pdf>