The 1973 – 1975 Energy Crisis and Its Impact on Transport

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Introduction

The 1970s are probably the most widely derided decade in recent British history. In recent months they have attracted considerable interest and several books have been published which revisit the period. The main focus of attention has been the depressing economic events of the 1970s and the way in which these events are paralleled in the economic and financial crisis of the past two years. However, there are also a number of interesting parallels in transport policy and the development of vehicle ownership and road traffic levels. These parallels are particularly apparent for the period from 1973 to 1975, when the oil shortages were at their most intense and Britain was facing an energy crisis.

The energy crisis of the 1970s begins with the Yom Kippur war between Israel and a number of states in the Middle East, which erupted on 6 October 1973. The Arab members of the Organisation of Oil Exporting Countries (OPEC) implemented an oil embargo on 17 October 1973, initially applying to the United States but quickly expanded to Western Europe and Japan because of the perceived support which those countries were giving to Israel. The embargo was accompanied by significant increases in the price of oil, which went up from around US\$3 per barrel before the war to over US\$11 per barrel by January 1974 and around US\$15 per barrel by November 1974.

These developments were serious for all the major Western countries. They had particular impact in the UK where they were accompanied by a major industrial dispute in the mining industry. The National Union of Mineworkers imposed an overtime ban in November with the aim of securing a major pay increase which was over and above the limits of the Conservative government's pay policy. An industrial dispute in the electricity supply industry followed while the overtime ban was in progress and there was a further dispute on the railways. Faced with both reduced oil imports and diminishing coal supplies, the Conservative government introduced a state of emergency in December. The measures imposed under this state of emergency included a three day working week in industry, restrictions on the use of electricity and the closure of all television networks at 10.30PM. There was also an emergency budget with planned reductions of 20% in capital expenditure and 10% in current expenditure for the following financial year.

The mining dispute and oil shortages continued into the New Year and in February the government called a general election. The result was indecisive with Labour the largest party but without an overall majority in the House of Commons. However, Labour formed a minority government, led by Harold Wilson, which reached a settlement with the miners and as a result the three day week came to an end. However, oil supplies continued to be very tight and prices were substantially higher than in previous years. This was one of the factors which influenced the high inflation rate during the year. In October there was another general election and Labour was returned to power with a small overall majority of three seats. A second defeat within a year sealed the fate of Edward Heath as Conservative leader and he was replaced by Margaret Thatcher in early 1975. The new Labour government continued to focus on the fall-out from the oil shortage and introduced and considered further measures to reduce energy consumption. However, by the middle of 1975 the impact of the oil embargo had largely passed, albeit that energy prices were far higher than they had been at the beginning of 1973.

The Labour government faced continuing economic difficulties with rising inflation, a balance of payments deficit arising from the significant increases in oil prices and a series of industrial disputes. Events came to a head in 1976 when markets began to lose confidence in sterling. In September 1976, the government approached the IMF for a loan of US\$3.9 billion, the largest ever requested from the fund. The IMF demanded significant cuts in public expenditure as a condition for the loan and these were announced in December 1976.

From both the overall historical perspective and the behaviour of car ownership and road traffic levels there are some interesting comparisons between the period from 1973 to 1975 and the events of the past two years.

First there is the perceived gravity of the economic and financial crisis. The events surrounding the collapse of Lehman Brothers have been widely described as the most serious financial crisis since the Great Depression. Similar comments were heard in 1973 and 1974. In a debate on the economic and energy situation at the end of 1973, the Prime Minister (Edward Heath), Leader of the Opposition (Harold Wilson), Chancellor of the Exchequer (Anthony Barber) and Shadow Chancellor (Denis Healey) all described the crisis as the gravest situation that Britain had faced since the Second World War. Nor was there any significant improvement in mood over the following year. In October 1974, in the aftermath of the election Harold Wilson stated that "Britain faces, and has for some considerable time been facing, the gravest economic crisis since the war."

Second there was a prolonged recession. GDP fell in both 1974 and 1975, by about 1% in each year. This is less severe than the current recession but it was as prolonged.

Third the fuel supply situation was not just one in which prices increased but a situation where reductions in use were sought regardless of price. In 1973 – 75 this reflected the reductions in supply from the Arab members of OPEC, initially as part of their response to the war against Israel but also as part of a wider economic strategy. Many Arab governments argued that their best available investment was in keeping oil in the ground and selling such oil as they did produce at much higher prices.

The impact on western countries was not only to make them wish to economise on oil use but also to seek increases in supply and reductions in demand for other fuels. The overtime ban and subsequent strike in the coal industry reinforced this trend in Britain but efforts to reduce overall fuel use continued after the miners' dispute was concluded. There is therefore a close parallel with current efforts to reduce fuel use in order to cut carbon emissions and control global warming.

There are number of areas in which the events of 1973 - 75 continue to resonate with more recent developments. These include:-

- (a) The motorist was a focus of particular attention in efforts to reduce fuel consumption.
- (b) There were few major differences between the two main political parties in their views and policies on the transport sector.
- (c) The events of the period had major practical impacts on transport policies and investments.
- (d) The differences of view on the potential impact of the crisis were wide.
- (e) Taxation policy was used as a component of demand management.

Following examination of these areas, the paper considers what actually happened to traffic levels during and after the energy crisis and considers the lessons which this period may have for the present day.

The Focus on the Motorist

From the very beginning of the crisis, motorists were asked to economize in the use of fuel. Peter Walker, the Secretary of State for Trade and Industry and cabinet minister responsible for the energy sector, asked on 24 October 1973 that "motorists should endeavour to cut down on petrol consumption and to use public transport to a greater extent where that is available." By 19 November, the government introduced a 10% reduction in all oil supplies and appealed for voluntary avoidance of driving at weekends and a voluntary reduction in maximum speeds to 50 miles per hour (mph). Significant shortages at the pumps and long queues were the immediate face of the oil crisis and there was soon a clamour for petrol rationing. Ration books were distributed to all motorists with effect from 29 November 1973.

Petrol rationing had been imposed during the Suez crisis of 1956 and, as shortages persisted, there was considerable pressure for rationing to be introduced on this occasion. However, this was resisted as an immediate measure by both Conservative and Labour ministers and by the end of March 1974 the short term threat of rationing had been effectively lifted as the supply situation eased. But government then considered a further rationing proposal called two tier petrol pricing. It was planned that motorists would receive a small basic allowance of petrol at one price with further purchases being at a significantly higher price. This proposal was the subject of intense speculation at the beginning of 1975 but was eventually rejected on grounds of administrative complexity and the cost impact on motorists.

Motorists were however encouraged to retain their ration books in case of deterioration in the supply situation and a change of heart by government. The threat of rationing finally disappeared in July 1975 when motorists were told they could destroy the ration books.

Speed limits were also a continuing focus of attention. The voluntary limit of 50 mph was made statutory in December and stayed in place until the end of March 1974, when it was lifted to 70 mph for motorways. The limit was subsequently increased for other roads in May but this proved only temporary as limits were reduced again in December as part of a package of energy saving measures. The new limits were 70 mph on motorways, 60 mph on dual carriageways and 50 mph on single carriageway roads. The limits were revised again in 1977 to the present structure.

The government also decided in December 1974 to undertake a thorough review of all the medical and economic implications of any further reductions in the lead content of petrol.

There were measures to reduce energy use in other areas. At the most extreme, for a brief period British industry was working a three day week. The energy conservation package introduced in December also included restrictions on the use of electricity for advertising and on the heating of public buildings. But even so it is clear that the motorist was a particular target for reductions in energy use.

At the time, petroleum provided about 46% of Britain's energy supply. Of this about 20% went into road transport and of this roughly 60% was used by private cars, 20% by heavy goods vehicles, 13% by light goods vehicles and 7% by other road users. The road user was therefore only a small part of overall energy use, despite attracting so much political attention.

The Views of the Major Political Parties

There was considerable consensus and continuity between the major political parties in their approach to the transport sector. The Labour government which took office in February 1974 reintroduced a Road Traffic Bill which had been lost as a result of the general election in a broadly similar form. The Railways Bill which was introduced in June 1974 was also based on work that had been in progress under the previous administration. The Channel Tunnel Bill enjoyed support from both front benches and there was some back bench opposition on both sides of the house. The period between the February and October 1974 elections saw considerable time devoted to transport issues. It is arguable that this reflected the difficulties facing a minority Labour government in putting through any contentious legislation. After Labour's victory in October the Queen's speech which followed contained no reference to any transport proposals. This similarity of outlook was recognised at the time. An article in the Times on 15 February 1974 by their transport correspondent was headed "Three Voices almost as one on Transport" and discussed the limited differences between the stated policies of the main parties in their election manifestoes. In the campaign for the October election, the Times reported that "All Politicians Drive on the same side" again reflecting the limited differences in policies towards the motorist. Labour's manifesto promised "to develop public transport to make us less dependent upon the private car" whereas the Conservative manifesto spoke of striking "a proper balance between the interests of the road and rail transport and between those of private motorists and public transport." But even this slight difference of tone was offset by the Conservative inner city policy which had the slogan of "boost the bus civilise the car."

These similarities of view also extended to a shared scepticism over whether the energy crisis would in practice lead to reductions in road traffic levels. In November 2003 Lord Drumalbyn, a Conservative spokesman in the House of Lords, stated in a speech that: "Even if out-of-pocket costs of private motoring rise more sharply than fares on public transport, motorists may well continue to place such a high value on the convenience and flexibility of travelling door-to-door by private car that they will prefer to absorb the higher cost of petrol rather than change to a less convenient mode of travel, particularly if real incomes continue to rise. So long as individual choice determines the mode of travel, the total demand for travel by car may thus not be affected substantially by the rising cost of motor fuel." The Labour junior transport minister Neil Carmichael spoke in similar terms in July 1974 when he stated, in response to a written question, that "The Department is at present assessing the effect on levels of traffic of new fuel prices, different rates of economic growth and the latest population forecasts. The present indication is that the new forecasts will not differ significantly from existing ones. We therefore consider it sensible, until the present review is finalised, to continue to use existing forecasts."

Impact on Transport Policy

While there was little difference between the views of the parties, there was a substantial change in policy over the period. The size of the rail network had been reduced substantially during the 1960s following the restructuring under Dr Beeching. There were still a number of branch lines with uncertain futures. However, in November 1973 the Minister of Transport, John Peyton announced that thorough studies on the prospects and needs of the rail industry had been carried out by the government and British Railways. The review considered three possible options against the background of social and economic needs, the preservation of the environment and the conservation of energy supplies. These were a major reduction in the size of the network, piecemeal elimination of individual loss making services and the maintenance and improvement of a network of roughly the present size.

The government adopted the third option and made a switch of resources within the transport sector with reductions in the urban road budget and additional funds for investment in the1973/74 increasing to £225 million in 1977/78.

The announcement was accompanied by a plan to consult with 100 of the largest firms in the UK, in consultation with the Freight Transport Association, to identify the scope for transferring traffic from road to rail. It was reinforced at the end of January when it was announced that, in general, no closure of substance would take place on the rail network before 1975. This affected a number of services where closure had already been approved such as the Ashford to Hastings, Bedford to Bletchley and Colchester to Sudbury lines. All three lines are still operational. The 1973/75 energy crisis was therefore a major watershed in policy towards the railways in that it ended a long period in which the network had contracted.

The Labour government followed broadly the same policies with a Railways Bill introducing a new system of support and control for rail operations. This new system got rid of the line by line grant for loss making rail passenger services and replaced it with a block grant for passenger services as a whole. In introducing the bill, the Labour transport minister, Fred Mulley, recognised that it built on work undertaken by his predecessor stating that: "This Bill is the outcome (of a review process) and it gives statutory recognition for the first time to the fact that the railways are not a normal nationalised industry but a unique type of public corporation which exists to serve social and environmental purposes as well as the economic needs. I should like to acknowledge the contribution of my predecessor the right hon. Member for Yeovil (Mr. Peyton), who asked for the review and who, as I understand it, reached a similar conclusion."

The Labour government also initiated the studies of the scope for transferring freight from road to rail, which had been planned by the previous administration, and was optimistic that the transfers would be significant. There a number of references in parliamentary questions to a "substantial shift of freight and passenger traffic from road to rail." The framework provided by the new Railways Act provided a better basis on which British Railways could plan its capital expenditure.

In the light of the planned traffic transfers, and despite admissions that the impact on road transport would probably be small, successive governments made significant cuts in the roads budget. The decision by John Peyton to transfer funds from urban roads to rail in November 1973 was followed by an emergency budget in December in which government cut the majority of capital programs by 20% and current programs by 10% for the following financial year. The roads program was included in these cuts. In June 1974 Fred Mulley, the transport minister announced changes in design standards for roads. He stated that "The amount of traffic that each form of road layout can safely handle is now found to be greater—thanks to improvements in vehicle performance and driver behaviour—than is provided for in my Department's present design figures.

I am accordingly arranging for future designs to use these higher flow capacities. This will mean, for example, in some cases a dual two-lane road may be appropriate instead of a dual three-lane road on present standards or, in a few cases, a single rather than a dual carriageway. In all cases we shall plan to provide for the predicted traffic flow for the next 15 years."

Further reductions in roads expenditure were announced in subsequent budgets. This was a period when the government was seeking economies in many areas of public spending and the reductions in the roads program were far from unique. But the cuts were more severe than in other areas. The overall impact was well summarised by Environment Secretary Anthony Crosland in March 1975: "The total expenditure on road construction 1974–75 to 1978–79 is expected to be nearly £200 million less at constant prices than for the previous five years. Over that period the five-year motorway and trunk road programme in England will decline somewhat while there will be a substantial fall in the construction of local authority roads. In percentage terms expenditure on road construction is expected to account for 35 per cent, of the total expenditure on transport over this period as compared with 48 per cent, in the previous five years, while expenditure on public transport is planned to rise from 27 per cent, of the total to 44 per cent. This reflects a change in priorities introduced by the Government which has already reduced the provision for motorways and trunk roads in 1975–76."

Opinions over the Impact of the Energy Crisis

The discussion above has shown that ministers changed the balance of public expenditure on transport substantially following the energy crisis with less spent on roads and increased focus on public transport, particularly the railways. However, this rebalancing took place in spite of the fact that ministers did not expect the crisis to have a significant impact on road traffic levels. There were many commentators, both in parliament and outside, who expected the impact on traffic levels to be far greater and who argued for more significant cuts in the roads program.

As early as November 1973, the Marquess of Hertford argued in the House of Lords that "It is painfully obvious that petrol will increase in price so that, even if there is no shortage or rationing, the idea of driving for pleasure will become as extravagant as it is eccentric." In January Labour MP Frank Judd proposed in the House of Commons that "In view of the on-going and long-term energy crisis, which is likely to be with us for all time, would not the Minister agree that the time has come to call a halt to superfluous road building and to use the public funds thus saved to finance effective and efficient public transport."

In February 1974, the chairman of a "Transport 2000" study group, Tony Blackburn, argued that "if the energy crisis means anything it means a complete change in transport priorities, with less emphasis on private motoring."

The Council for the Protection of Rural England published a report on "Transport Coordination or Chaos" in April 1974 which advocated a gradual but decisive move of resources from road construction towards improved rail and waterway transport. A TUC report on Britain's transport problems, published in June 1974, proposed direct restraint on use of the private car and improved public transport. A report entitled "Changing Directions" was published in June 1974, based on the work of an independent commission chaired by the Bishop of Kingston. It proposed a moratorium on road building until new management programs were implemented and policies to encourage pedestrians and cyclists, give priority to buses and restrain private traffic. The transport correspondent of the Times, Michael Baily, concluded in December 1974 that "obviously the rapid rise in car ownership and use will slow down, as is already happening....Already people are going by bus and train as the cost of motoring rises, and public transport becomes sufficiently competitive in price to outweigh the extra convenience of the car. The trend will gather momentum as central and local government concentrate investment on public transport rather than road construction.... the volume of movement of all kinds, not only private motoring, should shrink."

There were voices arguing in favour of road transport. In July 1974, leaders of the main road user groups sought a meeting with the Prime Minister to express concern at cuts in road construction. The group represented the Automobile Association, Royal Automobile Club, Freight Transport Association, Road Haulage Association and British Road Federation. The group noted that the petrol consumption in 1974 looked as though it would be the same as in 1973 and vehicle numbers were rising again. But overall the interest groups that supported continued road investment were not making their voices heard well.

Transport Taxation Policy

Some use was made of tax as a transport policy instrument. Denis Healey imposed VAT at the standard on petrol and diesel sales in his first budget in March 1974. He increased the rate for petrol to 25% in his November 1974 budget. He explained his decision as follows: "I have chosen to use VAT rather than the revenue duty on oil since this will ensure that the increased tax does not in general add to industrial costs and give a further upwards push to prices in the shops. It will also not increase fares on public transport....The new rate will apply to petrol but not to derv or to liquefied petroleum gas used as road fuel. The exclusion of derv from the increase will minimise the number of small undertakings who may have to consider voluntary registration. Moreover, diesel engines are more efficient in their use of energy than the petrol engines now generally available." Following this budget, the retail price of diesel was well below that of petrol which in turn encouraged the greater use of diesel as a fuel for cars.

The policy of encouraging diesel engines should be viewed against the background that only two cars were then available on the UK market with diesel engines (the Peugeot 404 and the Mercedes Benz 240). While other factors have played a role, it is clear that tax incentives can have significant impacts over the long term on engine choice.

Subsequently, consideration was given to the abolition of vehicle excise duty for all cars and the majority of goods vehicles with increases in duty on petrol and diesel to compensate for the lost revenue. There were a number of reasons for considering this option. It would provide an equivalent outcome to two tier petrol pricing, without the administrative costs. It would increase the marginal cost of travel while reducing the overhead cost of owning a car, thus making car travel costs more similar in structure to those of rail and bus travel and encouraging traffic transfers from cars to public transport. It would discourage vehicle use. It would enable reductions in civil service staff numbers.

Ultimately the Chancellor decided not to abolish VED because of the potential loss of tax flexibility and the potential impact on the UK motor industry. Both British Leyland and Chrysler approached the government with successful requests for financial assistance during 1974. At such a time, the government wished to sustain a stable market for these companies' products. One of the arguments against abolition was that it would favour smaller vehicles which would generally be imported.

There was considerable discussion of the potential for electric vehicles and government provided some funding for the development of sodium sulphur batteries for road vehicles. The Central Policy Review Staff of the Cabinet Office published a report at the end of June 1974 recommending the promotion of electric vehicles as part of energy conservation strategy. Professor Colin Buchanan and various government ministers made positive speeches at meeting of the Electric Vehicle Association. But there were no fiscal incentives to encourage investment in electric vehicles.

There was therefore comparatively little use of taxation to influence travel and vehicle ownership choices. Although the major change of abolishing VED was considered it was ultimately rejected, even though the decision was a close one.

Development in Traffic Levels

With the benefit of hindsight it is clear that the energy crisis of 1973 – 75 had little impact on long term trends in car ownership and traffic levels. Four key points arise from analysis of data from this period.

First, car traffic levels fell month on month by around 5% in 1974 compared to 1973. The early months of the year were affected by fuel shortages and the impact of the three day week but these had ceased to be factors by March.

Month	% Change in Traffic Levels (1974 on 1972)	% Change in Traffic Levels (1974 on 1973)
April	4.6	-4.4
Мау	2.3	-1.3
June	3.3	-6.5
July	-1.4	-6.9
August	3.2	-3.8
September	1.0	-5.3
October	2.0	-1.1
November	3.0	-1.4
December	0.6	13.3

The following figures show the reductions in traffic levels in 1974 compared to 1973:

These reductions took place at a time when traffic levels were generally rising at around 5% per annum. There is therefore no doubt that traffic levels fell in response to the sharply increased fuel prices (petrol went up from 36p to 72p per gallon between mid 1973 and the end of 1974) and recession conditions of 1974. However, the fall was small and suggested a price elasticity of demand of between 0.1 and 0.3.

Second, the fall in traffic was the result of lost trips and not diversion to other modes. There was little change in use of public transport.

Third, the fall in traffic levels was far greater on Sundays than on weekdays and slightly greater on Saturdays than on weekdays, as shown in the table below:-

Month	% change in tra	% change in traffic levels (1974 on 1972)			
	Weekday	Saturday	Sunday	Overall	
April	6.4	3.9	-3.7	4.6	
May	3.1	1.4	-0.8	2.3	
June	5.0	-0.1	-0.5	3.3	
July	0.6	-1.4	-9.8	-1.4	
August	4.5	1.2	-0.2	3.2	
September	2.6	-0.5	-4.8	1.0	
October	3.7	1.2	-4.6	2.0	
November	4.0	-0.0	1.1	3.0	
December	1.5	0.2	-4.1	0.6	

The breakdown of traffic by journey purpose and day of the week was as follows:-

	Journey Purpose				
Day of week	To and from work (%)	In course of work (%)	Other (%)		
Weekday	30	22	48		
Saturday	10	5	85		
Sunday	5	3	92		

These tables imply that the main impact was on leisure travel rather than travel to work or in course of work. This is consistent with the lack of traffic transfer to public transport. It appears that the main impact of the higher prices was to persuade people to forego leisure trips rather to transfer to train or bus for work trips.

Fourth, the impact of higher fuel prices was one off and once the crisis was over growth resumed at previous rates. This was recognised by the Department of the Environment as the likely outcome when it published its latest traffic forecasts in March 1975.

Fred Mulley, the Minister of Transport, issued the forecasts through answering a parliamentary question and stated that: "Because of the inevitable uncertainties about trends in fuel prices and the rate of economic growth we have taken three sets of forecasts based on different assumptions—a most probable, a higher and a lower. In our present difficulties it is essential to ensure that valuable resources are not wasted by building roads before they are needed, and I am arranging that all my new road proposals shall be tested against the lowest forecasts. Even on such a cautious basis the total number of vehicles is forecast to continue to rise substantially so that the continuing national road programme is justified on both economic and environmental grounds."

The new central forecasts estimated that there would be between 25 and 29 million vehicles on the roads of Great Britain by 2000. The actual figure was 28.9 million, at the top end of central expectations and well above the lower bound figures on which scheme appraisal was based.

Conclusions and Lessons

There are a number of ways in which the events of 35 years ago resonate today. First, the motorist is again the focus of particular attention as an energy user, to an extent that appears excessive in the light of the relative importance of motoring in total energy usage. The visibility of the motor car as an energy user probably makes this inevitable. But, equally inevitably, the speed and convenience of using the car for the majority of journeys will ensure that it remains the dominant transport mode.

Second, there are interest groups which argue that global warming has created a crisis such that the use of the private car cannot be sustained at current levels. Similar arguments were heard 35 years ago about the energy crisis. Motoring has adapted over those 35 years, with far more economical engines and the development of diesel engines in particular. The motorist may have to adapt to electric or hydrogen cars over the next 35 years but the demand for personal, adaptable transport is certain to continue as it is rooted so deeply in human behaviour.

One quite legitimate criticism of the official traffic forecasts in the 1970s was that they were largely based on trend projections. This reflected the difficulty of establishing in statistical terms the reasons for the rapid growth in traffic over the previous twenty years. Rising incomes appeared to be one factor but they were not the complete explanation – the reality was that younger people had a completely different attitude to car ownership from their parents and grandparents for the same level of personal income. But the fact that the forecasts relied so heavily on extrapolations of past trends enabled commentators to ascribe a variety of explanations for rising ownership and use levels.

This issue was identified by The Advisory Committee on Trunk Road Assessment, chaired by Sir George Leitch, in 1977. Several witnesses to the committee argued that traffic forecasts were self fulfilling with the new roads stimulating additional traffic which in turn justified forecasts of further increases in traffic levels. The report recommended that "the Department should as soon as practicable move away from the extrapolatory form of model currently used towards basing its forecasts on causal models." In making the case for continued investment in and maintenance of standards for roads it is important to base the case on behavioural causes and not just trends.

Third, in 1973 – 75 transport was not a party political issue. But cars and road traffic were still major political issues. The government responded to the climate of opinion of the day by cutting the roads programme significantly even though it did not expect the energy crisis to have a major impact on traffic levels. This ambivalence shows up clearly in official statements.

The outlook for public expenditure is at least as difficult today as it was in 1973 and the risk that the roads program will suffer significant cuts is clear. One interesting impact of the energy crisis on transport was the 1974 Railways Act, which put the finances of British Railways on a more sustainable footing with a block grant replacing various previous funding mechanisms and greater freedom for British railways to maintain its investment program. There were proposals for a similar framework for roads, with a Roads Board to oversee the sector. This proposal was advanced by the British Road federation in its submission to the Layfield Enquiry into Local Government Finance. It was also included in an internal Labour Party study, published in Socialist Commentary in March 1975.

Such a proposal could be equally applicable in the present crisis. A Roads Board with some revenue raising capability (for example from petrol and diesel taxes) would be able to make the case for improving the standards of roads and to offer the trade off between a higher fuel price and better roads. With the present structure in which all tax revenue accrues to the Treasury it is difficult to see any link between fuel taxes and roads spending and the likelihood is that the case for roads investment will take little account of the tax revenue raised.

Fourth, the example of the differential between tax on diesel and petrol shows what a powerful instrument tax policy can be over the long term. Although there were other factors at work in addition to tax policy, the incentive for diesel car engines appears to have worked extremely well in promoting change and saving fuel. However, the effect was felt over many years with significant improvements in vehicle fuel efficiency coming into effect only from the late 1970s onwards. In the recent past, government has promoted various tax reforms to influence transport choices such as differential rates of vehicle excise duty, preferential treatment of bio-diesel and a special tax regime for electric vehicles which meet certain criteria.

These reforms may have a major impact on behaviour if vehicle manufacturers and car buyers are convinced that the tax regime is in place for the long term. However, at present it difficult to identify an underlying philosophy about how the various motor taxes are set and this may detract from their potential as signals to vehicle designers and producers. The future is uncertain with improved petrol and diesel engines, biofuels, hybrids, various battery technologies and hydrogen vehicles all offering potential solutions for the motorist of the future. It is not a simple choice between petrol and diesel as it was in 1974. Tax policy will be most valuable if it is based on encouraging the most economical overall outcome rather than trying to pick winning technologies from the various options.