



# **Report on the Evaluation of the Company Car Tax Reform: Stage 2**

**Her Majesty's Revenue & Customs**  
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## Introduction

The changes to the company car tax regime in April 2002 were a significant step in the Government's continuing strategy to protect the environment by reducing carbon emissions by encouraging company car drivers to drive more environmentally friendly cars.

This report contains the findings from the second stage of the evaluation looking into the impact of the reform. The second stage work updates the findings of the first stage, published in April 2004, using more recent data and looks at some additional topics. It focuses on a number of key areas linked to the objectives for the company car tax reform.

These areas are:

- awareness and understanding;
- effect on levels of CO<sub>2</sub> and other harmful emissions from cars;
- effect on the numbers of cars on which company car tax is paid;
- effect on Exchequer revenues;
- effect on the types of fuel that company cars run on; and
- effects of the company car private fuel benefit tax reform.

## Summary of results

### Awareness and understanding

- Around 90% of employers and drivers claim to know about the reform.
- Nearly 50% of employers currently providing company cars and the majority of company car drivers were aware that list price and CO<sub>2</sub> (or at least pollution or fuel consumption in a more general sense) were the main determinants of tax and NICs liability on company cars.
- Just under 50% of current company car drivers and their employers knew that the reform was intended to reduce levels of harmful emissions from cars.
- Over 60% of drivers were aware of the reform of the tax treatment of free private fuel that took effect in April 2003.
- Around 55 - 60% of employers were aware of the 2002 reform introducing the tax and NICs rules for Approved Mileage Allowance Payments (AMAPs) for business travel in privately owned cars.

### Effect on levels of CO<sub>2</sub> emissions

- The company car tax reform is leading to significant reductions in CO<sub>2</sub> emissions from cars. This was around 0.2 - 0.3 MtC for 2005 and may increase to around 0.35 - 0.65 MtC for 2010 and reach a maximum level of savings in the long run of around 0.4 - 0.9 MtC per year towards the end of the next decade.
- The results suggest that the company car tax reform is encouraging substantial numbers of people to choose cars with lower CO<sub>2</sub> emissions figures. Average CO<sub>2</sub> emissions figures from company cars were around 15g/km lower in 2004 than would have been the case if the reforms had not taken place. This estimate refers to the impact of the company car tax reform over and above the general reduction in CO<sub>2</sub> emissions from cars over recent years.
- The survey results suggest that around 60% of company car drivers who were given a choice of company car by their employers were influenced by the company car tax reform and as a result chose cars with lower CO<sub>2</sub> emissions figures.
- The evaluation work also suggests that if drivers no longer have company cars, on average, they will choose private cars with CO<sub>2</sub> emissions figures that are around 5g/km higher as a result.

### **Effect on the numbers of cars on which company car tax is paid**

- The number of company cars has reduced to around 1.2 million in 2005 compared with around 1.6 million in 2001. (The estimate in the first published evaluation report was that there would be around 1.35 million company cars at the end of 2003.) The company car tax reform is a major reason for this.

### **Effect on Exchequer revenues**

- The modelling work suggests that the company car tax reform has led to overall losses in revenues from income tax and National Insurance Contributions (NICs) for the Exchequer. These losses arise because many employers and drivers are choosing company cars with lower CO<sub>2</sub> emissions figures as a result of the reform and some employers and drivers have stopped having company cars because of it.
- The central estimates are that these losses amounted to around £40 million for 2002/3, £135 million for 2003/4, £145 million for 2004/5 and £120 million for 2005/06.

### **Effect on the types of fuel that company cars run on**

- There has been a substantial increase in company cars running on diesel to around 50 – 60% at the end of 2004 from around 33% in 2002, a somewhat faster rate of increase than for the vehicle stock as a whole.
- The proportion of company cars running on diesel is forecast to rise to 60 – 70% over the next few years.

### **Effect of the company car private fuel benefit tax reform**

- There has been a reduction of around 600,000 company car drivers receiving free fuel for private use since 1997, with the number now standing at less than 400,000. This is partly because of the reduction in the number of company cars in the UK.
- However the proportion of company car drivers receiving free employer provided fuel for private use has also decreased significantly from around 57% in 1997 to around 30% now.
- This means a reduction of 70 - 100 million private miles in cars in 2005 due to the reduction in the number of company car drivers getting free fuel since 1997, although this is less than 0.1% of the total amount of mileage done in cars in the UK in 2005.

## Background

The Government has clear objectives to reduce pollution and help protect the environment. It believes that economic and fiscal instruments have an important role in meeting these objectives. The new company car tax system was introduced to enable these objectives to be met more effectively than was the case under the previous system.

In 1999 the Government announced its intention to reform the company car tax system in order to help protect the environment. The details were announced in Budget 2000 and the new rules came into force in April 2002.

The company car tax system is part of a wider package of measures aimed at tackling climate change and greenhouse gas emissions, and has been designed to provide financial incentives for employers and company car drivers to choose cars that produce lower CO<sub>2</sub> emissions. It also aims to encourage car manufacturers to develop and introduce greener cars.

The reforms mean that the benefit-in-kind that arises on an employee when he or she has a company car for private use is calculated by reference to the car's list price and CO<sub>2</sub> emissions, this figure is then subject to tax and NICs.

Potentially there are wide ranges of different effects from the company car tax reform and a full evaluation will take a number of years and therefore, the long-term impact of the reform will not be known for some time. This is because company car drivers most typically change their cars on a three to four-year cycle. Company cars then penetrate the second-hand private market. The potential long-term benefits of the reform for the environment are therefore significant and will be closely monitored over time.

Appendix I provides details of the previous and current company car tax systems.

Appendix II provides a summary of the first stage of the company car tax evaluation, published in April 2004.

Appendix III provides a summary of the evaluation methodology used to produce this report.

Appendix IV provides a summary table of some of the key results from the evaluation work.

The results of this report are based on a telephone survey by the research company BMRB (British Market Research Bureau) during November to December 2004.

## The Evaluation Findings

### Awareness and understanding

The surveys tested the general awareness of respondents about the company car tax reform, and looked in more detail at levels of understanding of how company car tax and NICs are calculated. The survey also examined levels of awareness of the reform of tax and NICs rules for business mileage in private cars and the reform of the fuel benefit tax charge<sup>1</sup>.

Around 90% of employees and employers claimed to know about the company car tax reform in 2002 when surveyed at the end of 2004. The claimed awareness of the lower profile reform in 2003 of the private fuel benefit charge was also encouraging at around 60 – 65%.

All the groups were asked about the reasons for the reforms. Just under 50% of current company car drivers and their employers knew that reducing CO<sub>2</sub> emissions or pollution was the intended effect. Around 20% of all those surveyed thought that the reform was designed to increase levels of tax revenues for the Exchequer. This reinforces findings from the first evaluation which suggested that significant numbers of employers and employees have assumed that the reforms were intended to raise revenues, when this was not the intention and the aim was to introduce a cost neutral reform.

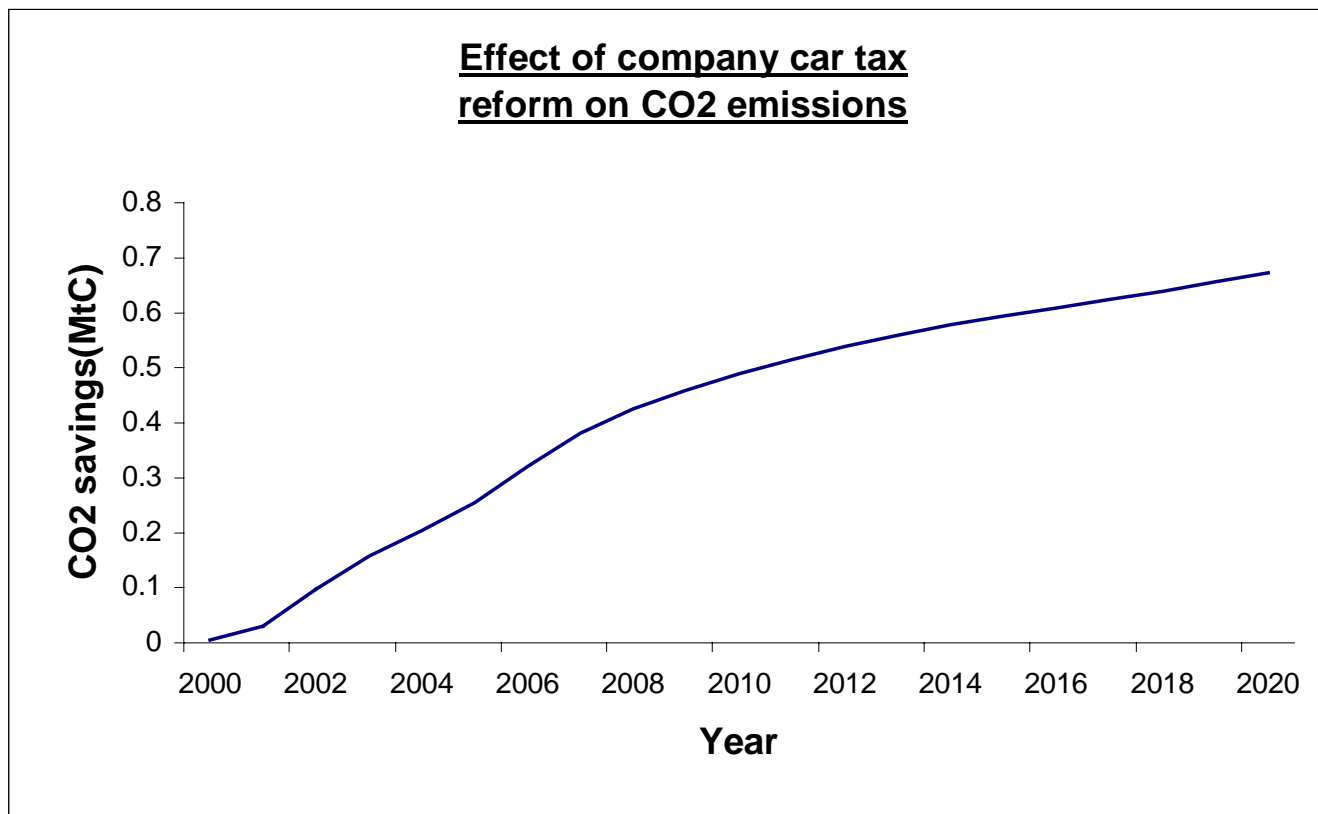
Although there are high levels of general awareness about the reforms, there is significantly less detailed knowledge of how the tax charge is calculated. Nearly 50% of employers providing company cars and the majority of drivers correctly identified the car's list price and CO<sub>2</sub> emissions figure (or at least its fuel consumption and pollution levels in a more general sense) as the key determinants for calculating the amount of tax and NICs payable. The levels of awareness were higher for employers with large fleets of company cars. This is significant, as changes made by an employer with a large fleet will have more impact on the overall effects of the reform than those made by an employer with a smaller fleet.

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<sup>1</sup> The fuel benefit charge was reformed from April 2003 to base it on the CO<sub>2</sub> emissions figures of the company cars and therefore further increase the tax and NICs incentives for drivers and employers to choose company cars with relatively low CO<sub>2</sub> figures.

## Effect on levels of CO<sub>2</sub> emissions

The company car tax reform is leading to significant reductions in CO<sub>2</sub> emissions from cars. These were around 0.2 - 0.3 MtC for 2005 and are predicted to increase to around 0.35 - 0.65 MtC for 2010. It is estimated that they might reach a maximum long-run level with savings of around 0.4 - 0.9 MtC per year towards the end of the next decade. Figure 1 below illustrates how the central estimates for the CO<sub>2</sub> emissions savings build up over time:



*Figure 1*

The results suggest that the company car tax reform is encouraging substantial numbers of people to choose company cars with lower CO<sub>2</sub> emissions figures. Average CO<sub>2</sub> emissions figures from company cars are estimated to be around 15g/km lower in 2004 as a result of the company car tax reform.

The research suggests that around 60% of company car drivers who were given a choice of car by their employers were influenced by the company car tax reform and chose cars with lower CO<sub>2</sub> emissions figures. Even allowing for some company car drivers not being given a choice of car by their employers, it suggests that by the end of 2004 the company car tax reform had already prompted nearly 50% of all company car drivers to choose company cars with lower CO<sub>2</sub> emissions figures.

The evaluation work also suggests that when drivers move out of company cars, they choose cars that are estimated to have CO<sub>2</sub> emissions figures that are around 5g/km higher on average than the company cars they replace.

The significant shift from petrol to diesel company cars in recent years is likely to have helped to reduce the total level of CO<sub>2</sub> emissions from cars, as diesel models tend to produce lower levels of CO<sub>2</sub> per km than similar petrol models. However the shift to diesel means that there has been an associated adverse impact on local air quality, as diesel cars, compared to petrol cars, generally produce higher levels of some pollutants such as nitrous oxides and particulates that harm local air quality.

The Euro IV emissions standards set by the European Commission for limiting levels of some local air pollutants, including nitrous oxides and particulates, from new cars became mandatory from 1 January 2006. They require new cars to produce significantly lower levels of local air pollutants than the earlier Euro standards. As a result they should help to reduce the adverse effects on local air quality that the shift to diesel will have contributed to. Draft Euro V emissions standards have been proposed by the Commission and these have even lower limits than Euro IV.

## Effect on the numbers of cars on which company car tax is paid

The second stage of evaluation looked in more detail at the reasons for the decline in company car numbers and considered possible future trends. The evaluation focused on cars that are provided by employers to employees without any transfer of ownership, and which are available for the employee's private use (including home to work commuting). Cars used solely for business purposes are not included, for example pooled cars or cars used in the course of the business (such as taxis and rental vehicles).

The first stage of the evaluation of the company car tax reform reported that there had been a reduction of around 250,000 company cars in the two years up to the end of 2003. At the time the reform was announced in the 1999 Budget there were around 1.6 million employees receiving company car benefits each year. It was estimated that this number had declined to 1.35 million at the end of 2003. The second stage results suggest that this number has declined further, to around 1.2 million company cars in 2005.

The extent to which numbers will change in future will depend on various factors, including the levels of CO<sub>2</sub> thresholds in company car tax and tax exemptions for business journeys undertaken in private cars<sup>2</sup>.

The survey results suggest that the perceived and real impacts of the 2002 company car tax reform is the biggest single reason cited by employers and employees for opting out of company cars. The results suggest that the reform was a reason for no longer providing company cars for around 70% of employers who opted out and for around 60% of employees who chose to give up a company car.

The introduction of the reformed AMAPs exemption is also cited as a factor. It influenced around 17% of decisions by employers to no longer offer company cars and around 25% of decisions by employees to choose to give up their company cars. About 25% of employers who no longer offer company cars also wanted to reduce associated administrative costs.

The other most commonly cited reasons why employers no longer offer and employees no longer want company cars are that:

- alternative forms of remuneration were considered more attractive;
- employees wanted a different type of car from those the employer was willing to offer as a company car; and
- company cars were no longer considered essential to the needs of the employer's business.

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<sup>2</sup> Approved Mileage Allowance Payments (AMAPs)

The survey results suggest that where employees opt out of company cars, and are offered alternative forms of remuneration, these are typically:

- cash, which is received by around 65% of opt-out employees;
- structured employee car ownership schemes (which are provided to around 150,000 employees). Evidence from the evaluation work suggests that in the majority of cases where employers and drivers have switched from company cars to employee car ownership scheme<sup>3</sup> cars, the reduction of tax and NICs liabilities is a key reason;
- AMAPs - between 50 – 75% of all opt out employers offer pence per mile rates equal to the maximum tax-free rates<sup>4</sup> allowed under the AMAPs system if employees use a private car for business journeys. Less than 5% of opt out employers are estimated to offer more than 40 pence per mile with the remainder offering less;
- company vans were provided to less than 5% of opt-out employees; and
- other non-cash benefits (e.g. private medical insurance, childcare vouchers, extra holiday entitlement) are received by around 1% of opt out employees instead of company cars

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<sup>3</sup> Employee car ownership schemes enable employees to acquire a car often within a specified finance framework. The common feature of the schemes is that the employer is involved in facilitating the arrangement in some way.

<sup>4</sup> Tax and NICs free AMAP rates:

**tax:** 40 pence per mile for the first 10,000 per tax year, 25 pence per mile thereafter.

**NICs:** 40 pence per mile regardless of the number of miles

## Effect on Exchequer revenues

Modelling work suggests that the company car tax reform has led to overall losses in revenues from income tax and NICs for the Exchequer. The central estimates are that this amounted to around £40 million for 2002/03, £135 million for 2003/04, £145 million for 2004/05 and £120 million for 2005/06 as shown in Figure 2 below.

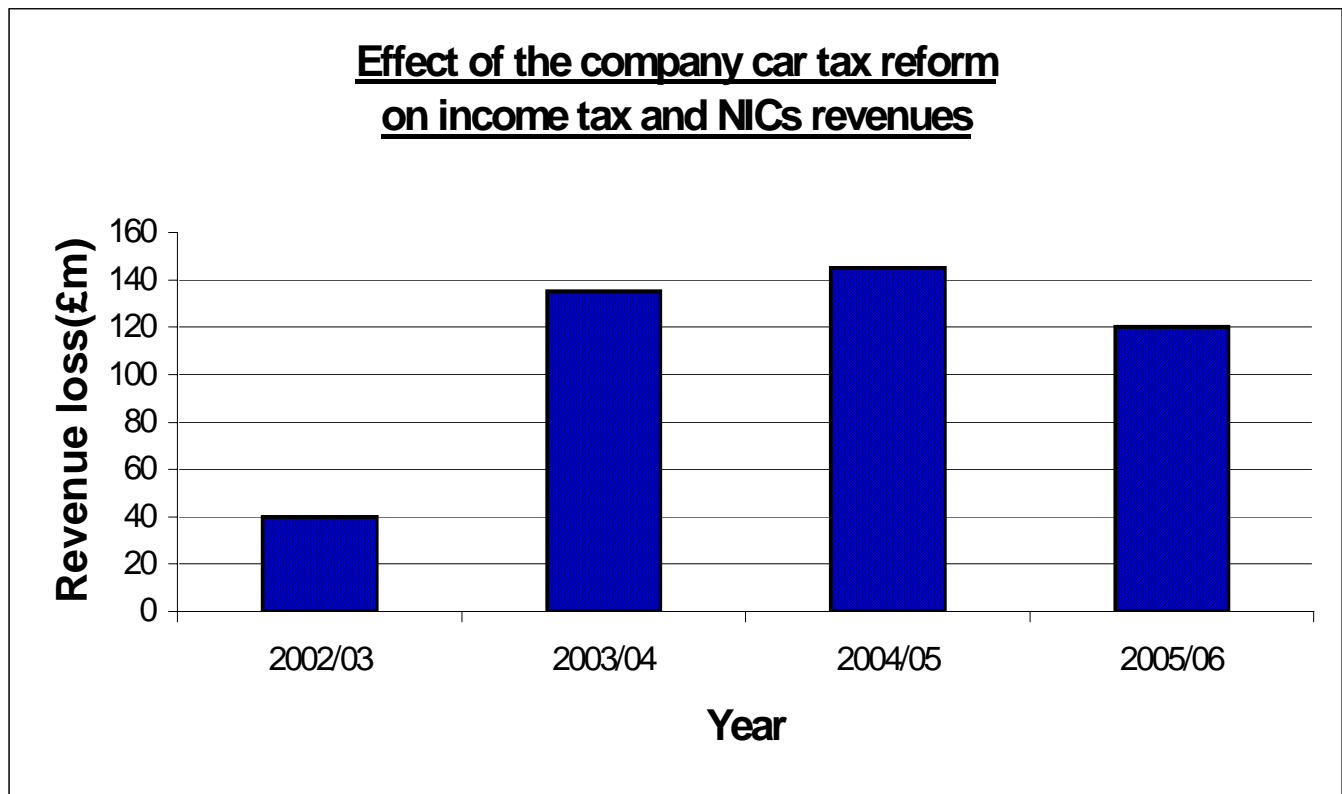


Figure 2

There are a number of different factors influencing the overall effects of the company car tax reform on the levels of income tax and NICs revenues that the Exchequer receives. The most important factors that were taken into account in the analysis were:

- drivers and employers choosing company cars that have lower CO<sub>2</sub> emissions figures in order to reduce the amount of income tax and NICs they have to pay for company cars;
- the overall shift from petrol to diesel company cars in recent years which is partly due to the company car tax reform;
- the significant reduction in the number of company cars over recent years, partly due to the company car tax reform, has in itself reduced the total amount of income tax and National Insurance that HMRC collects from the benefit-in-kind charge;

- the reduction in the number of company cars due to the company car tax reform means that fewer drivers get benefits-in-kind of free private fuel from their employers and so the Exchequer has lost income tax and NICs revenues on these benefits too. From 2003/04 the tax and NICs on free private fuel was also calculated by reference to the CO<sub>2</sub> emissions of the car. Therefore employees choosing company cars with lower CO<sub>2</sub> emissions figures will lead to the Exchequer receiving lower income tax and NICs revenues from free private fuel benefits. This has led to an estimated reduction in revenue to the Exchequer of around £180 million for 2004/05;
- the majority of employees who no longer have company cars receive extra pay subject to income tax and NICs in compensation. The extra income tax and NICs collected on this extra pay has offset most but not all of the loss in income tax and NICs revenues that would have been collected. The revenue gains for the Exchequer due to this have been estimated to be around £360 million for 2004/05.

## Effect on the types of fuel that company cars run on

The number of diesel company cars has increased substantially from around 33% in 2002 (the year the reforms were introduced) to around 50 – 60% by the end of 2004. If this trend continues, the proportion of company cars running on diesel could perhaps rise to 60 – 70% over the next few years. However the effects of the withdrawal of the 3% diesel supplement waiver for diesel cars meeting Euro IV emissions standards, which will take effect from 6 April 2006 for all new cars registered from 1 January 2006, are not known at this stage.

The significant trend towards diesel has occurred for cars in general and is not just limited to company cars. Although the surveys suggest that the 2002 company car tax reform has been a contributory factor in the increase in popularity of diesel cars as company cars. While the reform of company car tax has, therefore, been perceived to favour diesel cars over petrol cars by some employers and employees, there is a general trend towards diesel that appears to be significant in explaining the growth in the diesel company car population. Around 25% of all company car drivers claim to be, at least in part, influenced by company car tax when deciding which type of fuel they'd like their company cars to run on. Other factors that help to explain this trend include:

- generally lower pence per mile fuel costs for diesel cars;
- improvements in the image of diesel cars in recent years;
- reduced noise levels from diesel cars in recent years; and
- a greater choice of makes and models now available.

The first stage of evaluation found that less than 1% of all company cars can run on alternative fuels such as Liquid Petroleum Gas (LPG) and electric power. The findings from the second stage remain consistent with this estimate. Less than 2% of all employers who provide company cars said that they had alternatively-fuelled cars in their company car fleets.

## Effect of the company car private fuel benefit tax reform

There has been a substantial fall of around 600,000 in the number of company car drivers receiving free employer-provided fuel for private use from almost 1 million in 1997 to under 400,000 now. This is shown in the Figure 3 below.

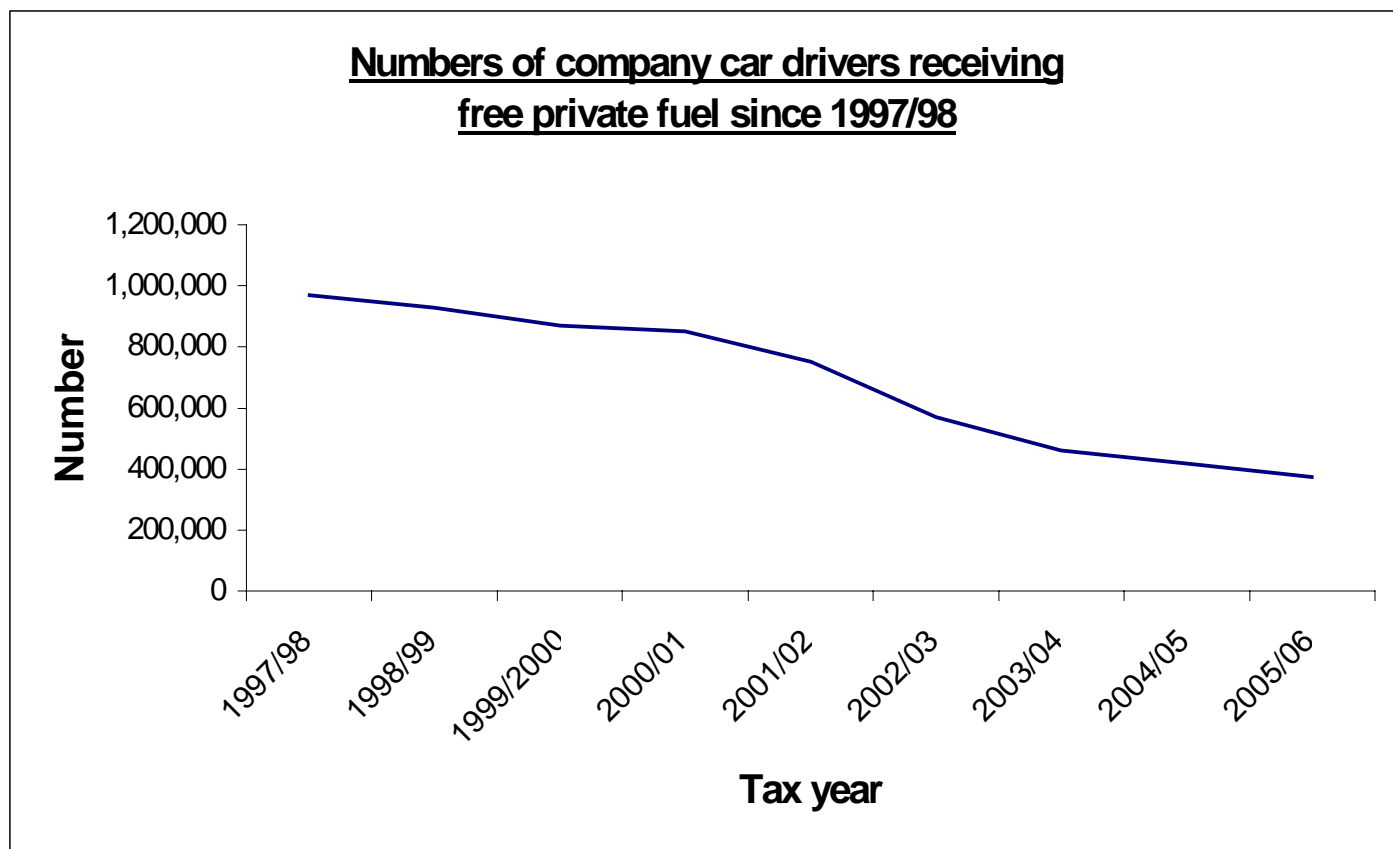


Figure 3

This is partly explained by the significant reduction in the number of company cars since 1997. However the proportion of company car drivers provided with free fuel for private use has also fallen significantly since 1997 from around 57% to around 30% now. This clearly shows that other factors are also important in explaining the reduction.

The evaluation suggests that the prime reason for the substantial fall in the proportion of company car drivers provided with free fuel for private use is tax. This is explained by:

- (i) the programme of annual increases in the fuel scale charges<sup>5</sup> for private fuel benefits for company car drivers of 20% over and above

<sup>5</sup> The Fuel Scale Charges are set amounts for the deemed taxable values of benefits of free fuel for private use for company car drivers based on the engine size of the company car and the type of fuel it used. Employers class 1A National Insurance contributions are also payable on these benefits.

changes in fuel prices at the pumps between 1998/99 and 2002/03, and

- (ii) the impacts of the 2003 reform to the fuel benefit charge rules which have made free fuel a less attractive benefit for some company car drivers.

The increases in the fuel scale charges between 1998/99 and 2002/03 were considered by drivers (with company cars at the time of the surveys) to have influenced them or their employers to give up free fuel for private use in around 75% of cases where they have stopped getting free fuel since 1998. Around 90% of employers (providing company cars at the time of the surveys) who have stopped providing free fuel to employees since 1998 said that they were influenced to do this by the programme of increases in the fuel scale charges.

These increases have therefore discouraged employers from offering (and company car drivers from accepting) free fuel for private use. This has reduced the amount of private mileage driven in company cars, and will have contributed to an estimated reduction of around 70 - 100 million miles driven in cars in 2005 since 1997. This estimate is based on evidence from the surveys about how many drivers say they drive less private mileage because they no longer receive free fuel for private use and the reductions in private mileage that they said they have made because of this.

Additionally around 50% of all decisions by employers still providing company cars and drivers who still have company cars to stop offering or receiving free fuel between 2002 and 2004 were influenced by the 2003 reform.

## The next stage

The effects of the company car tax reform will be felt for a number of years ahead, and will need to be closely monitored. This information will be used to continue to inform the maintenance and further development of company car tax and other related aspects of the tax system.

The reform of company car tax in 2002 was, and continues to be, an important strand of the Government's policy commitment to reduce greenhouse gases. This further work will help the Government to assess the extent to which the company car tax reform is helping the UK to meet its commitment under the Kyoto protocol to reduce greenhouse gas emissions to 12.5% below 1990 levels between 2008 and 2012.

Company cars are also very important to businesses in the UK and to the economy as a whole. HMRC will continue to monitor and maintain the company car tax regime to ensure it achieves the goal of reducing levels of harmful emissions and pollutants, while taking into account relevant economic and social factors.

Further information about these changes to company car tax can be found at [www.hmrc.gov.uk/cars](http://www.hmrc.gov.uk/cars). There is also a facility on the HMRC website enabling people to work out the levels of company car tax due for particular cars. This can be found at [www.hmrc.gov.uk/calcs/cars.htm](http://www.hmrc.gov.uk/calcs/cars.htm).

## Appendix I

### Previous Company Car Tax System

The company car tax system prior to April 2002 was based primarily on the list price of the car and the annual level of business mileage done by the company car driver. The basic calculation of the taxable value of the car benefit was:

- 35% of the list price of the car if less than 2,500 business miles were done in the tax year
- 25% if 2,500 to 17,999 business miles were driven
- 15% if 18,000 or more business miles were driven

If the company car was four or more years old at the end of the tax year, the taxable value of the car benefit for the appropriate business mileage band was reduced by 25%.

Company car drivers were liable to pay income tax on the taxable value of the company car benefit at the appropriate marginal rate(s). Their employers were liable to pay Class 1A NICs on the same amount.

This system encouraged some employees to drive more business miles than they otherwise would have so that they could exceed the 2,500 or 18,000 mile thresholds and therefore pay less tax. This was environmentally damaging and contributed to increased congestion on the UK's roads. There were no explicit incentives in the system for drivers and employers to choose company cars that produced relatively low levels of harmful emissions (although cars with low list prices do generally produce lower levels of CO<sub>2</sub> emissions than those with higher list prices).

### Current Company Car Tax System

The current company car tax system was intended to address these environmental shortcomings. For the large majority of company cars it is based on the CO<sub>2</sub> emissions that the car produces; the business mileage thresholds that were a feature of the old system were removed.

For company cars that run solely on petrol or diesel, the percentage charges applied to the prices of the cars still range between 15% and 35% of the list price as was the case before. However the exact percentage used in the calculation is determined by the approved CO<sub>2</sub> emissions figure for the car and then rounding this figure down to the nearest number divisible by five. In 2002/03 the rounded CO<sub>2</sub> emissions figure had to be 165g/km or less for the car to qualify for the 15% charge level. This "lower threshold" level was

reduced to 155g/km for 2003/04, 145g/km for 2004/05 and frozen at 140g/km for 2005/06, 2006/07 and 2007/08.

For each additional 5g/km by which the CO<sub>2</sub> emissions figure exceeds the lower threshold, the percentage charge increases by 1% until the level at which the maximum 35% charge applies is reached (currently 240g/km). Diesel cars incur a 3% supplement to the percentage charge to reflect that they often produce higher levels of harmful local air pollutants such as particulates and nitrous oxides. However this diesel surcharge is waived for diesel cars that meet the Euro IV emissions standards (a measure of cleanliness set down in an EU-wide directive) if the cars were first registered before the Euro IV standards become mandatory from 1 January 2006 onwards<sup>6</sup>.

Company cars running on alternative fuels qualify for additional discounts to the percentage charge as they produce relatively lower levels of harmful emissions. These discounts are set at 2% for company cars that were manufactured to run on Liquid Petroleum Gas or Compressed Natural Gas, 3% for hybrid electric company cars and 6% for electric only company cars. The reduction for older company cars available under the previous system was removed, as older cars tend to produce higher levels of harmful emissions than newer equivalents.

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<sup>6</sup> The 3% diesel surcharge will apply for diesel cars meeting the Euro IV emissions standards from the 2006/07 tax year onwards if they are first registered after the Euro IV emissions standards become mandatory for new cars from 1 January 2006 onwards. For tax years before 2006/07 the 3% diesel surcharge has been waived for all company cars meeting the Euro IV emissions standards.

## Appendix II

### The First Stage of the Evaluation

The report of the first stage of the evaluation of the impact of the reform of the company car tax system was published in April 2004 and the full details of the report can be accessed on HM Revenue & Customs' website at [www.hmrc.gov.uk/cars/cct\\_eval\\_rep.pdf](http://www.hmrc.gov.uk/cars/cct_eval_rep.pdf). The key findings from the first stage of the evaluation were:

- Estimated savings of around 0.15 to 0.2 MtC saved due to the reform in 2003 (equivalent to around 0.5% of CO<sub>2</sub> emissions from all road transport).
- Around 300 – 400 million fewer business miles travelled from April 2002 to March 2003 than in the preceding 12 months with the reduction expected to remain at similar levels in future years. The saving in carbon emissions was estimated to be around 25,000 to 35,000 tonnes for 2002/03, although it was expected that this would decrease slightly over time as average levels of CO<sub>2</sub> emissions from cars are expected to gradually fall.
- A reduction in the numbers of cars on which company car tax was paid from around 1.6 million to around 1.35 million in the two years to November 2003.
- A switch from petrol to diesel with the proportion of company cars running on diesel at around 40 – 45% in April 2004. This trend was expected to increase with diesel-powered company cars rising to around 50 – 60% by 2005.
- After one-off additional costs of around £55 million to prepare for the introduction of the new system, it would cost employers around £35 million a year less to comply with the new tax and NICs rules.

## Appendix III

### Evaluation Methodology

#### Coverage of the evaluation

The evaluation work looks at the impacts of the package of company car tax changes introduced in 2002. It includes the effects of the switch from a system in which tax was calculated based on the levels of annual business mileage undertaken in cars to a system based on the CO<sub>2</sub> emissions figures of company cars. It also includes subsequent changes in the CO<sub>2</sub> emissions thresholds after 2002/03.

#### Sources of information used

The findings in this second stage of the evaluation report are based on surveys of drivers and employers; snap shot information from HMRC live tax systems and information from other relevant sources such as statistics produced by the Department for Transport.

HMRC commissioned an independent research organisation, BMRB, in September 2004 to undertake the surveys of employers and drivers. These surveys took place in November and December 2004, with over 3,000 interviews split between four categories:

- employers providing company cars at the time of the survey;
- employers who had stopped providing company cars by the time of the survey;
- employees driving company cars at the time of the survey; and
- employees who had stopped driving company cars by the time of the survey.

The results presented in this report draw heavily on the findings from these surveys, combined with information from various other sources. Information from the surveys was weighted in the analyses to reflect some estimated differences between the characteristics of the samples of employees and employers covered in the surveys and the population characteristics (e.g. region and industrial sector) of the four groups surveyed.

The results for levels of employers and employees presented in the report refer to the estimated proportions obtained after weighting. As with all surveys of this nature the answers given may have been influenced to a degree by the way the survey questions were structured and worded and there may have been some scope for some respondents to misunderstand questions. Additionally, there may have been some difference in the

characteristics of the employers and employees who agreed to be interviewed for the research and those who declined, and this could have some affect on the reliability of the results.

Many of the findings in this paper come from relatively simple analyses of the data that was available. However in order to assess the effects of the company car tax reform on levels of CO<sub>2</sub> emissions from cars and Exchequer revenues some more complex modelling work was required. More details about this can be found below. Many drivers surveyed by BMRB did not know the CO<sub>2</sub> emissions figures of their cars. It was necessary to impute them using information about car characteristics published by the Vehicle Certification Agency and information the drivers were able to supply about the characteristics of their cars (for example: make, model, fuel type, engine size etc).

### Looking at the effects of the reform on CO<sub>2</sub> emissions from cars

The company car tax reform impacts on the levels of CO<sub>2</sub> emissions produced by cars in the UK in a number of different ways, as shown in the following simplified equation. More details about how they were modelled in the analysis are also given in this section:

<p style="color: blue;">Overall effect of the company car tax reform on levels of CO<sub>2</sub> emissions from cars</p> <p style="text-align: center;">=</p> <p style="color: blue;">Reductions in levels of CO<sub>2</sub> emissions from drivers and employers choosing company cars with lower CO<sub>2</sub> emissions figures due to the reform</p> <p style="text-align: center;">+</p> <p style="color: blue;">Reductions in levels of CO<sub>2</sub> emissions due to some private cars that were formerly company cars having lower CO<sub>2</sub> emissions figures due to the reform</p> <p style="text-align: center;">+</p> <p style="color: blue;">Reductions in CO<sub>2</sub> emissions as some drivers no longer have tax incentives to drive more business miles following the company car tax reform</p> <p style="text-align: center;">+</p> <p style="color: blue;">Reductions in CO<sub>2</sub> emissions from non-company cars attributed to car models with lower CO<sub>2</sub> emissions figures being manufactured for the UK as a result of the reform</p> <p style="text-align: center;">-</p> <p style="color: blue;">Increase in CO<sub>2</sub> emissions due to drivers and employers no longer having company cars due to the reform and having other types of cars instead</p>
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#### *Why the CO<sub>2</sub> savings from the company car tax reform build up over time*

Employers purchase most company cars when either brand new or nearly new. The company car tax system based on the CO<sub>2</sub> emissions figures of

company cars therefore helps to reduce CO<sub>2</sub> emissions from cars in the UK by encouraging some drivers and employers to choose cars that produce less CO<sub>2</sub> emissions. The environmental benefits of this will build up over many years until the maximum level of long-run CO<sub>2</sub> emissions savings from cars is reached. This is because although company cars are most typically replaced every 3 - 4 years many company cars will subsequently be sold on the private, second-hand car market.

Therefore, in time, privately owned cars in the UK will have, on average, lower CO<sub>2</sub> emissions because they are former company cars. This helps to explain why the maximum long-run level of annual CO<sub>2</sub> savings from cars due to the company car tax reform won't be reached until towards the end of the next decade. However, the savings will be getting reasonably close to this level by 2010.

#### *Reductions in levels of CO<sub>2</sub> emissions due to people choosing company cars with lower CO<sub>2</sub> emissions figures*

The estimated CO<sub>2</sub> savings from company cars were modelled using results derived from the BMRB surveys which suggest that CO<sub>2</sub> emissions from newly acquired company cars were around 15g/km lower on average by 2004 as a consequence of the company car tax reform.

The average CO<sub>2</sub> savings from company cars are likely to increase further beyond this level in future. This is because employers and drivers are becoming increasingly aware of the financial benefits of choosing company cars with relatively lower CO<sub>2</sub> emissions figures, with possible further switching from petrol to diesel company cars and cars with relatively low CO<sub>2</sub> emissions figures becoming increasingly available in the UK. It has been assumed that CO<sub>2</sub> emissions from newly acquired company cars will be around 20g/km lower on average from 2006 onwards due to the reform to allow for these effects.

#### *Effects on CO<sub>2</sub> emissions when people no longer have company cars*

The evaluation work has found that the number of company cars in the UK has fallen from around 1.6 million at the time the reform was announced in the 1999 and 2000 Budgets to around 1.2 million by 2005. The results from the BMRB surveys also suggest that when drivers stop having company cars they switch to having cars that have CO<sub>2</sub> emissions figures that are around 5g/km higher than the company cars that they would have otherwise have had if they had not opted out.

These adverse effects on CO<sub>2</sub> emissions from people opting out of company cars were taken into account in the modelling work. As the extent to which people will continue to choose to have company cars in future is unknown it was assumed that the number of company cars will remain at the estimated level of 1.2 million in 2005 until 2010. It was also assumed numbers will then

rise from then onwards in line with the estimated annual growth in the total number of cars in the UK of around 2.5%<sup>7</sup>.

### *Effects of the company car tax reform on the type of cars available in the UK*

A further way in which the company car tax reform can influence CO<sub>2</sub> emissions from cars in the UK is by leading some manufacturers to produce models of cars with lower levels of CO<sub>2</sub> emissions than would otherwise have been the case. The evidence from the research suggests that the company car tax reform has influenced many drivers and employers to try to choose cars with lower CO<sub>2</sub> emissions figures. It is hoped that some manufacturers will develop models of cars that have lower CO<sub>2</sub> emissions figures than would otherwise have been the case in response to this change in demand patterns.

There is also anecdotal evidence that some manufacturers have introduced some diesel models of cars partly in response to the effects of the company car tax reform (this is significant as diesel models can often have lower CO<sub>2</sub> emissions figures than similar petrol models). This helps to reduce CO<sub>2</sub> emissions from cars not just by leading to some company cars having lower CO<sub>2</sub> emissions than would otherwise have been the case but it will also lead to other cars having lower CO<sub>2</sub> emissions too. It isn't possible to accurately quantify the size of these effects and as a result, a fairly modest arbitrary assumption that cars in the UK will have CO<sub>2</sub> emissions figures that are 2g/km lower in the long run has been used.

### *Reductions in CO<sub>2</sub> emissions as some drivers no longer have company car tax incentives to do more business miles*

The company car tax reform has also reduced levels of business mileage driven in cars as, unlike the old company car tax system, the new system doesn't give some drivers an incentive to do more business mileage in order to pay less tax. In the first stage of the evaluation work it was estimated that this had led to a reduction of around 300 - 400 million business miles being done in the UK. This has also contributed to the reduction in total CO<sub>2</sub> emissions from cars due to the company car tax reform.

### *Uncertainties about the overall effect on CO<sub>2</sub> emissions*

There are many uncertainties related to the factors influencing the long-run effects of the company car tax reform on levels of CO<sub>2</sub> emissions produced by cars and so the estimates for this are by necessity subject to a fairly wide margin of error. For example, it isn't known exactly how many company cars there will be in future, how long they will stay on the roads for and the exact extent to which their CO<sub>2</sub> emissions figures will on average be lower due to the company car tax reform.

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<sup>7</sup> This is based on the annual average growth in the number of all cars in the UK between 1996 and 2004 according to Department for Transport statistics.

Therefore, the quoted estimate for the long-run annual CO<sub>2</sub> savings is in a fairly wide range of 0.4 to 0.9 MtC per year to help to reflect this, with the central estimate being around the middle of this range.

### Looking at the effects of the reform on Exchequer revenues

The company car tax reform has affected the amounts of revenues the Exchequer gets from income tax and National Insurance contributions in a number of different ways. Some of the key ways in which they were affected can be shown in the following simplified equation and details of how they have been modelled in the analysis are described in this section:

<p>Overall effect on income tax and NICs revenues due to the company car tax reform</p> <p style="text-align: center;">=</p> <p>Reduction in income tax &amp; NICs revenues because of drivers and employers choosing company cars with lower CO<sub>2</sub> emissions figures due to the reform</p> <p style="text-align: center;">+</p> <p>Reduction in income tax &amp; NICs revenues due to an increasing proportion of company cars running on diesel rather than petrol because of the reform</p> <p style="text-align: center;">+</p> <p style="text-align: center;">Reduction in income tax &amp; NICs revenues due to fewer drivers having company cars because of the reform</p> <p style="text-align: center;">+</p> <p style="text-align: center;">Reduction in income tax &amp; NICs revenues received for free private fuel benefits due to the company car tax reform</p> <p style="text-align: center;">-</p> <p>Extra income tax &amp; NICs revenues on extra cash pay that some employees get when they no longer have company cars due to the reform</p>
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#### *Drivers and employers choosing company cars with lower CO<sub>2</sub> emissions figures*

Many drivers and employers have chosen company cars with lower CO<sub>2</sub> emissions figures than would otherwise have been the case because of the incentives to do this in the company car tax system. The effects of this have been modelled using data from HMRC's administrative data about how this has influenced the percentage charges that are used to calculate drivers' company car tax liabilities since 1999/00. These results are broadly consistent with the findings derived from the BMRB research that company cars had CO<sub>2</sub> emissions that were about 15g/km lower on average by 2004 due to the effects of the company car tax reform.

### *Increasing proportion of company cars running on diesel rather than petrol*

There has been a net shift from petrol to diesel company cars over recent years and some of this is due to the actual and perceived effects of the CO<sub>2</sub> based company car tax system favouring diesel company cars over similar petrol cars. This was modelled by taking into account the estimated increase in the proportion of company cars running on diesel from around 33% in 2002 to over 50% now. It's estimated that around 33% of the shift to diesel is attributable to the company car tax reform after taking into account the results from the surveys and the general trend towards diesel over recent years for new cars that are not subject to company car tax too.

### *Reductions in the numbers of company cars in the UK*

There has been a substantial decrease in the number of company cars in the UK from around 1.6 million at the times the company car tax reform was announced in the 1999 and 2000 Budgets to around 1.2 million in 2005. It was assumed that 50% of this reduction is due to the impacts of the company car tax reform as the research suggests that various other factors such as the introduction of the AMAPs system and increasing popularity of alternatives such as cash pay also affect the trend. The reductions in numbers of company cars due to the reform have led to significant reductions in levels of revenues for the Exchequer from income tax and NICs on company car benefits-in-kind and this was taken into account in the analysis.

### *Effects of the company car tax reform on levels of income tax and National Insurance Contributions received for free private fuel benefits*

The decision to no longer have company cars or to choose company cars with lower CO<sub>2</sub> emissions figures because of the company car tax reform also affects levels of income tax and NICs on the benefit-in-kind of free fuel for private use for company car drivers. This is because many people will stop having such benefits if they stop getting company cars from their employers and also because they are taxed on the basis of the CO<sub>2</sub> emissions figures for the company cars for which the free private fuel is given.

This was taken into account in the analysis by assuming that people who no longer get company cars would have been as likely to receive free fuel for private use just before they stop having them as those who continued to get company cars. It was also assumed that people who choose to have company cars with lower CO<sub>2</sub> emissions figures due to the reform will be as likely to receive free fuel for private use as those who do not.

*Many employees getting extra taxable cash pay from their employers if they no longer have company cars*

The Exchequer loses revenues from income tax and National Insurance contributions on company car benefits-in-kind when people no longer have company cars. However, if this is replaced by additional cash pay subject to tax and NICs, the Exchequer will receive further income tax and NICs on this instead. Not all company car drivers will get more cash pay in return for no longer having a company car but the results from the BMRB research suggest that the majority do. The evaluation research suggests that the average amount of extra taxable pay people get if they opt out of company cars was around £3,000 in 2004.

The extra income tax and NICs on extra cash pay when people stop having company cars offsets the majority of the reductions in income tax and NICs on company cars and free private fuel for company car drivers due to the company car tax reform. This is a key reason why the overall reductions in income tax and National Insurance revenues for each year up to 2005/06 are estimated to be under 5% of the total amount of income tax and National Insurance collected for company car and private fuel benefits for 2002/03.

## Appendix IV

### Summary table of key results

Estimated CO <sub>2</sub> savings due to the company car tax reform in 2005	<b>0.2-0.3 MtC</b>
Estimated CO <sub>2</sub> savings due to the company car tax reform in 2010	<b>0.35-0.65 MtC</b>
Estimated CO <sub>2</sub> savings due to the company car tax reform per year in the long-run	<b>0.4-0.9 MtC</b>
Estimated average reduction in CO <sub>2</sub> emissions from company cars by 2004 due to the company car tax reform	<b>15 g/km</b>
Estimated average increase in CO <sub>2</sub> emissions from cars when drivers stop having company cars	<b>5 g/km</b>
Estimated reduction in income tax and NICs revenues due to the company car tax reform in 2005/06 tax year	<b>£120m</b>
Estimated proportion of employers and company car drivers aware company car tax reform took place	<b>90%</b>
Proportion of company cars running on diesel at the end of 2004	<b>50-60%</b>
Estimated number of company cars in 2005	<b>1.2 million</b>
Estimated reduction in the number of company cars between 1999 and 2005	<b>400,000</b>
Estimated reduction in the number of company car drivers getting free private fuel since 1997	<b>600,000</b>