

Tax Incentives for Bus Commuters

Executive Summary

January 2014

The initiative allows employers to provide their employees with 'e-vouchers' to help pay for the cost of commuting to work by bus. The e-vouchers will be issued via smartcard, they will have a fixed value and will be exempt from income tax and national insurance. We refer to the initiative as the 'Bus Bonus'.

Rationale for the Bus Bonus

Buses play a central role in helping people access employment, with almost 2.5 million people in Great Britain regularly commuting to work by bus and an additional million who see the bus as a vital back-up. Buses are particularly important to those on low and moderate incomes, with data from the National Travel Survey showing that 48% of the lowest income group and 36% of the second lowest income group do not have access to a car. As transport costs are second only to housing, fuel and power in terms of their share of total household expenditure, the affordability of commuting to work presents a genuine challenge to many households.

The objective of the initiative is to improve access to jobs by making it easier and cheaper for people to commute to work by bus. The initiative will encourage more people to enter the labour market and/or travel further to find work that better matches their skills. It will also encourage commuters to switch from car to bus easing highway congestion and reducing harmful vehicle emissions. The initiative will help promote the use of smart ticketing and over the longer term help to promote a vibrant and effective bus market.

How the scheme would work

The proposed solution draws on experience of operating public transport tax incentives elsewhere (in the US, Canada and Ireland) as well as 'salary sacrifice' schemes in the UK. In developing the solution, we have undertaken an extensive consultation exercise with 48 stakeholders from local and central government, transport authorities, bus companies, business and special interest groups.

The scheme would operate in a similar way to the childcare voucher scheme currently in place. Box 1 provides an outline of the operating model.

Box 1 – Operating model

- Employers offer employees e-vouchers, which can be used to purchase bus travel (via a smart card). The employee pays for the e- vouchers through a salary sacrifice scheme.
- These e-vouchers would be exempt from income tax and National Insurance Contributions.
- There would be a cap or maximum limit to the value of e-vouchers that are tax exempt, depending on the employee's tax rate. Individuals on lower incomes will have a higher cap.
- The individual can purchase more or less than the value of this cap, although would have to pay income tax and National Insurance Contributions on the value above the cap.
- If the value of the e-voucher is not spent in any given period, it will be carried over to the next period.

Value for money

The initiative reduces the cost of bus travel to employees who participate in the scheme, making it easier and cheaper for them to access employment by public transport.

Working with KPMG LLP, Greener Journeys estimate that the scheme will generate a **net benefit of £93.4 million per year** to the UK economy. Figure 1 provides a breakdown of the annual costs and benefits for a scheme coming into effect in 2014/15.

Figure 1 – Summary of the annual costs and benefits



The initiative is expected to cost the Treasury £79.5 million per year in foregone tax revenues from individuals and employers, reduced fuel tax revenues from car-based commuting and a change in revenue support to bus operators. In return, the scheme generates benefits to bus users, non-users and the wider economy totalling £172.9 million in the first year of operation. The net benefits are expected to increase over time as new demand stimulates the need for additional capacity and further improvements in service quality benefiting all bus passengers.

It is important to note that the estimation of costs and benefits centres on transport and transport related impacts and does not include the impact on related policy areas such as social welfare and public health, which are clearly important. Even so, for each £1 of foregone tax, the initiative generates £2.17 in benefits. This represents **high value for money** according to the Department for Transport's appraisal guidance.

Parity with other transport users

Those who travel to work by car and are provided with workplace parking are exempt from tax on this significant benefit. Those who cycle to work are eligible to participate in tax-efficient schemes to pay for their bikes. Those who travel to work by rail benefit from around £1.65 per trip in government support whereas those who travel to work by bus only benefit from around £0.40 pence per trip in government support.

Tax Incentives for Bus Commuters

January 2014

1 Introduction

This document provides a summary of the 'Business Case' to provide tax incentives to encourage commuting to work by bus.

Summary of the initiative

The initiative allows employers to provide their employees with 'e-vouchers' to help pay for the cost of commuting to work by bus. The e-vouchers will be issued via smartcard, they will have a fixed value and will be exempt from income tax and national insurance.

We refer to the initiative as the 'Bus Bonus'.

The analysis to support the Business Case for the initiative has been undertaken by KPMG LLP. It is based on publicly available data¹ that has been assembled in a way that is consistent with the Department for Transport's guidance on transport appraisal² and structured in accordance with the Treasury's 'Five Case Model'³.

Before setting out the Business Case in more detail, we identify the objectives for the initiative, the relevant challenges and opportunities and a range of possible solutions. The document also includes appendices on the operation of similar schemes elsewhere in the world, the key findings of an extensive stakeholder consultation process and details of the analytical framework used to support the economic and financial analysis.

2 Objective of the initiative

The objective of the initiative is to improve access to jobs by making it easier and cheaper for people to commute to work by bus. By reducing the cost of commuting by bus the initiative will:

- improve access to jobs, increasing the effective size of the labour market and thereby allowing skills to be better matched to employment opportunities
- encourage commuters to switch from car to bus, reducing congestion on the road network, providing relief on transport infrastructure and work-based car parking, reducing traffic related pollution and improving the sustainability of public transport in the longer term.

By administering the scheme via smart technology, the initiative has an added benefit in helping to progress the Department for Transport's aim to increase the use of smart ticketing.

¹ The data used in this analysis is from publicly available sources such as the Office of National Statistics and the Department for Transport. Further details are provided in Appendix C.

² <http://www.dft.gov.uk/webtag/documents/webtag2.php>

³ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

3 Challenges and opportunities

The challenges and opportunities that this initiative aims to address centre on the importance of bus travel for the journey to work and the affordability of travel, especially for households on low and moderate income.

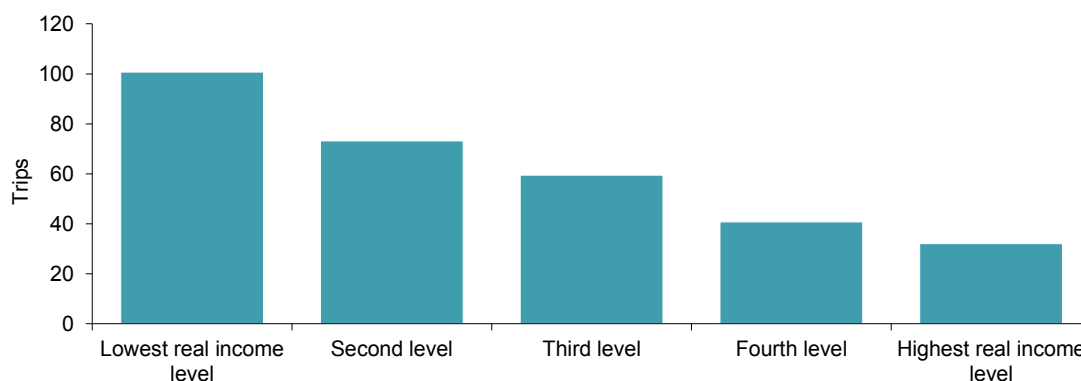
Buses are essential to get many people to work

Buses play a central role in helping people access employment, with almost 2.5 million people in Great Britain regularly commuting to work by bus and an additional million using the bus as a vital back-up.

Buses are particularly important to those on low and moderate incomes with data from the National Travel Survey showing that 48% of the lowest income group and 36% of the second lowest income group do not have access to a car. As transport costs are second only to housing, fuel and power in terms of their share of total household expenditure, the affordability of commuting presents a genuine challenge to many households.

Research by Passenger Transport Executive Group has estimated that 203 million commuter journeys were undertaken via bus in Passenger Transport Executive areas in the last year⁴, with a greater proportion of those trips undertaken by low income households (Figure 2).

Figure 2: Bus travel by household income quintile: Great Britain, 2012 (Source: National Transport Survey)



Transport is unaffordable to many

According to the Office of National Statistics, transport is the second highest expenditure for the average British household costing £64.10 weekly or 15.2% of total spending (Figure 3). Public transport services make up £10.50 of this (£546 per year). A large number of reports have noted how costs and accessibility of public transport acts as a barrier to jobs⁵. The Social Exclusion Unit notes that:

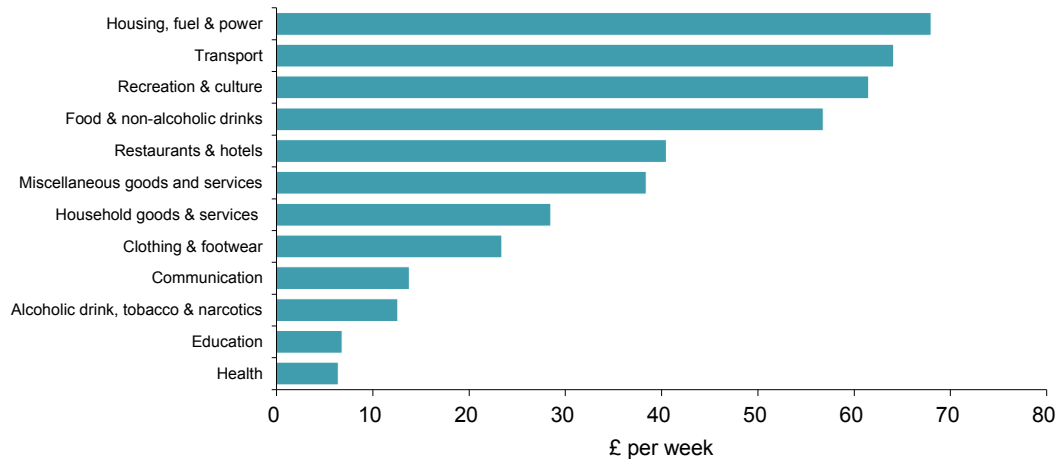
‘A large minority are therefore stuck in a vicious cycle. They experience poor transport as a

⁴ PTEG, The Case for Urban Bus, 2013

⁵ For example the Intergenerational Foundation Report (http://www.if.org.uk/wp-content/uploads/2013/05/No_Entry_final_report_definitive.pdf), ‘Missing Million Policy Paper 2 ‘ by the Work Foundation (<http://www.theworkfoundation.com/Reports/327/Missing-Million-Policy-Paper-2-Transport-barriers-to-youth-employment>), as well as the ‘Making the Connection, Transport and Social Exclusion ‘ from the Social Exclusion Unit (<http://mtcwatch.com/pdffiles/3819-CO.pdf>)

consequence of social exclusion: they cannot afford the costs of motoring or public transport fares, or they cannot drive because of age or disability. And poor transport reinforces this exclusion by cutting people off from work, learning, and health care opportunities'

Figure 3: Household Expenditure per week 2012 (Source: ONS)



Creating a 'virtuous cycle' in the bus market

By effectively reducing fares for commuters, the Bus Bonus initiative will stimulate demand. This new demand will require additional capacity in the form of new routes and service frequencies which improve the quality of service and generate even more demand. This self-reinforcing dynamic will help create a virtuous cycle, improving the sustainability of the bus market at a time when local authority spending on public transport is under pressure. A healthy bus market is the lifeblood of a growing economy - people travelling to work by bus produce £64 billion of economic output a year⁶.

4 'Bus Bonus' operating model

4.1 Operating model design

The specification of the operating model for the Bus Bonus initiative is based on the following design principles identified during an extensive consultation with stakeholders.

- a) **Simple and familiar:** an overly complicated untried system is not likely to be attractive to either employers or employees
- b) **Flexible:** to cater to the diverse range of travel needs and patterns in the country
- c) **Low administrative cost:** particularly for employers and bus operators
- d) **Effective and targeted:** in increasing patronage of buses, with particular attention to targeting those most in need of the assistance
- e) **Cost-effective:** provide value for money.

⁶ Mackie, P. Laird, J and Johnson, D. (2012) 'Buses and economic growth', University of Leeds report to Greener Journeys. http://www.greenerjourneys.com/wp-content/uploads/2012/06/BusesEconomicGrowth_FINAL-REPORT1.pdf

4.2 Operating model issues

In the following section we provide a discussion on issues relating to the specification of the operating model.

4.2.1 What type of bus tickets / products can be tax exempt?

The objective of the initiative is to improve access to jobs by making it easier and cheaper for people to commute to work by bus. The initiative therefore needs to target commuters.

One option would be to provide tax exemptions on **annual season tickets**. The advantage of such a scheme would be that it is relatively straightforward to implement, as many operators already offer such tickets. The disadvantage is that it is likely to be an expensive upfront commitment from the individual, with limited flexibility for change.

It may also not be compatible with increasingly diverse patterns of work that involve more part-time work, working from home, weekend work, or zero-hour contracts, for example. Limiting tax exemptions to annual season tickets is therefore likely to miss out on a large number of workers, and especially those workers that are most in need of assistance.

A more effective option would be for tax exemptions on **e-vouchers** (up to a certain cap) which can be used to purchase bus-travel products (season tickets, 'carnet' tickets, individual tickets). This allows the employees to take up flexible options depending on their travel plans and needs. For example, part-time employees can take up a lower quantity / value multi-trip ticket than full-time employees.

4.2.2 What tax / taxes should be exempted?

Taxes are paid by both employees and employers, and tax exemptions can be provided at both these levels. The two most important taxes here are income tax (PAYE) paid by employees, and national insurance contributions (NICs), which are paid by both employers and employees.

Generally, tax exemptions on benefits can have either or both these taxes exempt. For example, childcare vouchers and vouchers for bicycles (up to a certain level) are exempt from both income tax and NIC for both employees and employers. However, certain benefits-in-kind, such as salary sacrifice gym-memberships for example, have only employee NIC exempted, but for which PAYE and employer NIC must still be paid.

The implications of exempting these taxes are provided in the economic and financial appraisal described below. At the broadest level, the greater the breadth and depth of tax exemption provided, the greater would be both the costs and benefits associated with the policy initiative.

The main advantage of exempting from both PAYE and NIC is that there is already precedent of such exemptions (such as the childcare voucher and cycle-to-work scheme mentioned above). Employers, employees, third party administrators and HMRC would therefore be more familiar with implementing a scheme such as this.

The main disadvantage of this approach is that it cannot be applied on a localised basis, and in particular to target areas of the country where bus patronage is either in decline or where public transport costs are a specific barrier to work.

In order to undertake a locally targeted policy, one option is to look at taxes that are paid at the local level. An option may be to provide exemptions on business rates, again up to a certain level per employee, depending on total public transport expenditure by the company as part of the relevant applicable scheme. However, such a scheme would be administratively complex (e.g. where firms operate in multiple areas), with limited impact as there would still be income and/or NIC taxes liabilities. The net additional impact of such a scheme would therefore be limited.

4.3 Preferred operating model specification

The proposed solution draws on experience of operating public transport tax incentives elsewhere (in the USA, Canada and Ireland) as well as 'salary sacrifice' schemes in the UK. Box 1 below provides further details of how the scheme would work.

Box 1 – Operating model

- Employers offer employees e-vouchers, which can be used to purchase bus travel (via a smart card). The employee pays for the e- vouchers through a salary sacrifice scheme.
- These e-vouchers would be exempt from PAYE and National Insurance Contributions.
- There would be a cap or maximum limit to the value of e-vouchers that are tax exempt, depending on the employee's tax rate. Individuals on lower incomes will have a higher cap.
- The individual can purchase more or less than the value of this cap, although would have to pay tax and national insurance contributions on the value above the cap.
- If the value of the e-voucher is not spent in any given period, it will be carried over to the next period.

The advantages of such a system with regard to our design principles are as follows:

- a) **Simple and familiar:** The preferred option is similar to the childcare voucher scheme in operation in the UK, which has now been widely implemented around the country.
- b) **Flexible:** Employees can buy tickets to suit their needs, rather than committing to a large upfront payment.
- c) **Low administrative cost:** From an operational viewpoint, smart-card systems are already in place on most of the routes. Therefore offering such multi-trip tickets on a smart-card would not be administratively complex. From an accounting perspective, as outlined above, employers are already familiar with such policies and therefore can incorporate this when reporting employee benefits.
- d) **Effective and targeted:** The tax exemption is likely to result in a good discount on bus travel, which our analysis shows will have a notable impact on patronage. The progressive nature of the benefit would also result in it being more effective in targeting those employees with the greatest need for such a benefit.
- e) **Cost effective:** The cost effectiveness of the initiative is reported in section 5.2.

To be attractive to individuals and employers the scheme will need to be simple and cost effective to run. Where businesses are unable to administer the scheme, third party providers may also play a role in providing a service, such as the specialist providers that operate in transport markets in the US or those that help to administer childcare vouchers in the UK.

5 The Business Case for the Bus Bonus

5.1 Introduction

In this section we set out the Business Case for the Bus Bonus initiative following the 'Five Case Model' as recommended by HM Treasury. The five cases include:

- Strategic case
- Economic case
- Financial case
- Commercial case
- Management case.

Please note that the Commercial case relates to public procurement and is therefore not covered here.

5.2 Strategic case

The objective of the initiative is to improve access to jobs by making it easier and cheaper for people to commute to work by bus. The initiative will encourage more people to enter the labour market and/or travel further to find work that better matches their skills. It will also encourage commuters to switch from car to bus, easing highway congestion and reducing harmful vehicle emissions. The initiative will help promote the use of smart ticketing and, over the longer term, help create a sustainable bus market, reducing the need for direct Government support.

The initiative fits with the Government's stated objective to 'support sustainable growth by investing in local transport, decentralising funding and powers, tackling local congestion and making public transport (including light rail), walking and cycling more attractive'⁷.

Buses play a central role in helping people access employment, with almost 2.5 million people in Great Britain regularly commuting to work by bus and a further million using the bus on a less-regular basis to get to work. Buses are particularly important to those on low and moderate incomes with data from the National Travel Survey showing that 48% of the lowest income group and 36% of the second lowest income group do not have access to a car. With transport costs second only to housing, fuel and power in terms of their share of total household expenditure, the affordability of commuting presents a genuine challenge to many households.

The proposed solution draws on experience of operating public transport tax incentives elsewhere (in the US, Canada and Ireland) as well as 'salary sacrifice' schemes in the UK. Transport tax incentives are particularly popular in the US with almost three million people benefiting from voucher schemes in areas such as New York, Chicago, Boston, San Francisco and Seattle. In the UK, tax-free vouchers to pay for childcare have been available since 1989 with families on relatively modest incomes benefiting the most. Evidence of how similar schemes work elsewhere and in other policy contexts is presented in Appendix A.

In developing the solution, we have undertaken an extensive consultation exercise with local and central government, transport authorities, bus companies, business and special interest groups, including consultations with 48 individuals representing 36 organisations (Appendix B). The vast

⁷ Department for Transport Business Plan 2012-2015

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3367/dft-2012-business-plan.pdf

majority of respondents to the consultation expressed positive views on the development of tax incentives whilst at the same time noting key challenges in reducing the loss in tax revenues, keeping the administration of the scheme simple and stressing the need to provide evidence to show that the initiative will deliver good value for money.

5.3 Economic case – value for money

5.3.1 Overview of the results

The impact of the initiative on economic welfare is estimated in accordance with the Department for Transport’s guidance on transport modelling and appraisal. A description of the data, assumptions and methodology used is presented in Appendix C.

The initiative involves an ‘effective’ transfer of tax from the Treasury to employees and employers. This transfer reduces the cost of bus travel to employees, stimulating demand and changes in travel behaviour.

Figure 4 below shows the overall annual costs and benefits associated with this initiative. Impacts are presented as annual values for the year 2015/16 given at 2010 prices for a policy coming into effect after the General Election. It is assumed that these represent a good proxy for the *annual* costs, benefits and transfers associated with the proposed scheme in future years. It is important to note that under strict economic appraisal guidance, the direct impacts on costs and benefits of the Bus Bonus should be excluded from the analysis as it is simply a transfer from Government to the consumer however we have included it in this analysis for clarity.

Figure 4: Summary of annual costs and benefits



The initiative is expected to cost the Treasury £79.5 million per year in foregone tax revenues from individuals and employers, reduced fuel tax revenues from car-based commuting and a change in revenue support to bus operators. This is the equivalent of 0.4% of the 2013/14 government budget for transport spending of £21 billion. Or to put it in another context, it is about 8% of the £1.1 billion currently spent by local authorities in England alone⁸ on concessionary bus schemes. The Government’s childcare tax benefit scheme, announced in 2013, with similar aims of encouraging greater labour force participation is expected to cost approximately £1 billion to £1.4 billion⁹.

In return, the benefits to users, non-user and the wider economy total £172.9 million. The **net benefit** of the Bus Bonus scheme is estimated at **£93.4 million**. For each £1 of foregone tax, the initiative generates £2.17 in benefits. This represents **high value for money** according to the Department for Transport’s appraisal guidance.

⁸ House of Parliament Standard Note 1499 “Buses: Concessionary Fares” 2013, available at www.parliament.uk/briefing-papers/sn01499.pdf

⁹ See <http://www.theguardian.com/money/2013/mar/30/childcare-vouchers-how-work>, and <http://www.telegraph.co.uk/finance/budget/9944505/Budget-2013-George-Osborne-confirms-childcare-vouchers-for-working-parents.html>

5.3.2 Economic impacts

A more detailed breakdown of the economic costs and benefits is shown in Table 1 below.

Table 1 Bus bonus impacts

	Annual impact	£ million
1	User benefits: Fares benefit Generalised journey time benefit arising from improvements in service quality	£66.9 £28.4
2	Non-user benefits Decongestion, Safety, Local Air Quality, Noise, Greenhouse Gases	£13.1
3	Employer benefits Employer NIC savings	£19.4
4	Bus operator benefits Change in operating profits	£25.0
5	Wider economic benefits Improved labour market accessibility	£20.0
6	Cost to Government Foregone tax revenue Change in revenue support (including devolved BSOG to Local Authorities) Reduced fuel tax	£70.7 £4.5 £4.3

1. User benefits

For bus users benefits are generated in two different ways: fare benefits and travel time benefits.

Fare benefits are generated through the foregone PAYE income tax and NIC. In the preferred option this is equivalent to a 32% discount on the fare and is estimated at £66.9 million.

Travel time benefits for bus users amount to £28.4 million. These are generated through the travel time savings from the increased frequency associated with increased patronage.

2. Non-user benefits

The effective discount on bus fares offered by the salary sacrifice scheme is expected to lead to modal shift as those formerly travelling by car now choose to take the bus. We estimate this to account for 15.2 million trips in 2015/16. The corresponding reduction in car kilometres will generate decreased noise pollution, improved local air quality, less greenhouse gas and fewer accidents. The monetised benefits of these are listed below:

- Noise £0.1 million
- Local air quality £0.1 million
- Greenhouse gases £0.7 million
- Accidents £1.5 million

In addition the reduction in car kilometres is estimated to produce decongestion benefits valued at £10.7 million.

3. Employer benefits

A salary sacrifice scheme is also beneficial to an employer as it is able to forgo the employer's NIC which would have been paid but for the scheme. The estimated benefit of this to employers amounts to £19.4 million.

4. Bus operator benefits

Estimated net benefits to private sector operators amount to £25 million; this is composed of three factors. Operator revenue increases by £45.5 million as a result of the increased patronage of 49 million trips in 2015/16 driven by the effective discount on ticket prices. In order to meet this increase in demand for services, which is likely to be at peak time, private sector operators will have to put on further services, increasing operating costs by £23.8 million. Bus operators also receive an increased grant/subsidy of £3.3 million.

5. Wider economic benefits

The implementation of a salary sacrifice scheme is projected to have wider economic benefits. It is estimated that greater accessibility to employment, as provided by the scheme, will increase the number of jobs by 1,111 in 2015/16. It is estimated that these employment impacts will lead to wider economic benefits of £20 million.

It is noted that the above benefits are estimated for the first year of policy implementation only. We expect that these benefits would not only continue, but also grow over time as the bus market enters a virtuous cycle of rising patronage and improved service quality.

6. Cost to Government

The introduction of a salary sacrifice scheme is estimated to lead to a £70.7 million reduction in tax revenue. In addition, modal shift from car to bus is estimated to lead to a fall of £4.3 million in indirect tax receipts from fuel duty.

As part of the broad transport budget grants/subsidy provided by central government to private sector bus operators would increase by £3.3 million plus £1.2 million to local authorities.

It is important to note that the costs and benefits described above centre on the transport and transport-related impacts of the initiative. They do not include the economic impact of the initiative on related policy areas such as welfare, employment and public health which are clearly important.

7. Parity with other transport users

Those who travel to work by car and are provided with workplace parking are exempt from tax on this significant benefit. Those who cycle to work are eligible to participate in tax-efficient schemes to pay for their bikes. Those who travel to work by rail benefit from around £1.65¹⁰ per trip in government support whereas those who travel to work by bus only benefit from around £0.40¹¹ pence per trip in government support.

5.4 Financial case – affordability

The scheme does not involve a direct, up-front investment on behalf of the government. The main financial cost of the policy is the loss of tax revenue for HMT, including:

- Employee PAYE and NIC: £51.3 million
- Employer NIC: £19.4 million.

¹⁰ DfT Statistics show that for 2011/12 the total subsidy to rail in Great Britain was £2,407.6 million and the number of rail trips was 1,460 million.

¹¹ DfT Statistics show that for 2011/12 the total subsidy to bus in England (excluding concessionary travel) was £1,315 million and the number of non-concessionary trips was 3,059 (excluding concessionary trips). We have excluded concessionary travel from the analysis as the concessionary scheme works on a no-better off, no-worse off basis.

In addition to the loss of tax revenue, there are also additional costs of approximately £8.8 million associated with the project:

- Other payments to bus companies and local authorities: £4.5 million
- Loss of indirect taxation (fuel duty): £4.3 million.

5.5 Management case – deliverability

The preferred operating model is outlined in section 4.3 above. This section outlines the roles played by relevant groups and organisations responsible for delivery.

Given the deregulated nature of the UK bus market, the implementation of the policy would involve coordination between the DfT, bus companies, employers, local authorities and HMRC. The role of each of these organisations is outlined Table 2 below.

Table 2 Roles and Responsibilities of relevant bodies

	Organisation	Role
1	DfT:	Analyse the policy option and propose legislative change to the relevant tax laws in order to introduce this into policy. Review the implementation of the policy to ensure benefits, in terms of increase in patronage among targeted groups, is realised.
2	Bus companies	Introduce, offer and publicise the relevant bus products to the target groups Work with third party operators, employers and local authorities to expand the network and provide high quality services to commuters
3	Employers	Publicise e-voucher scheme to employees Either directly administer an e-voucher scheme, or coordinate with bus operators or third party groups to administer the e-voucher scheme Negotiate with bus operators to get discounts for their employees Where possible, coordinate with third party providers of employee benefits schemes to make the system simple and easy for employees
4	Local Authorities	Incorporate the increase in bus patronage into local transport plans Work with bus operators to ensure bus infrastructure is sufficiently robust to cater for increase in demand
5	HMRC	Issue guidelines on how companies can benefit from the scheme

6 Next steps

The next steps involve further consultation with policy makers and government departments to achieve a broad consensus for the initiative and develop a robust programme for delivery.

Appendices

7 Appendix A – Evidence from other relevant countries and policies (childcare vouchers)

7.1 Tax incentives for public transport

There are numerous working examples from around the world in which tax free commuting benefits relating to bus transport are provided by government. Examples of such are listed below:

7.1.1 USA

A voucher scheme operates in many regions of the USA where individuals are able to access tax free vouchers which can be exchanged for transit tickets. The current limit is set at \$245 per month having risen from \$15 in 1984. It has proved popular with both employees and employers, with it becoming a standard benefit in major business areas such as New York, Chicago, Boston, San Francisco, and Seattle amongst others. It is estimated that the total number of individuals who benefit from the scheme is 3 million¹². The distribution of take up rates suggests that the scheme is much more effective in areas of high population density with effective public transport alternatives.

There are a number of interesting features of the policy, notably that vouchers are accepted by a wide range of operators and not necessarily limited to one operator. The vouchers also do not expire from month to month, both of these factors make the scheme simple to operate.

One of the key arguments that the original supporters of the scheme put forward was the '*theory of the second best*'¹³. They argued that tax free work place parking in the USA distorted the commuter market and as this could not be rectified, the next best solution was to reduce the tax the individuals paid when purchasing public forms of transport.

7.1.2 Canada¹⁴

The Canadian Government introduced a non-refundable tax credit in July 2006 for public transit. The current level provides tax relief on \$150 per month on public commuter transit service expenses related to commuting to and from work. Individuals engage with the Canadian Revenue Agency at year end and provide receipt of their purchases and then receive a tax credit up to the limit mentioned.

7.1.3 Ireland

Ireland operates a salary sacrifice scheme for annual, monthly or part yearly passes under its TaxSaver Commuter Ticket Scheme. The cost of the season ticket is deducted from an employee's salary before tax. The benefit an individual receives therefore relates to their tax rate, with those on higher levels getting the greatest savings. Companies save up to 10.75% in PRSI while employees can save between 31% - 52% in tax, prsi and USC. In total 3,500 employers have signed up for the scheme demonstrating its popularity.

7.2 Childcare vouchers

The UK already has a tax free voucher scheme which was introduced 1989 in the form of child care

¹² Baker, S. Judd, D and Oram, R, Tax-Free Transit Benefits at 30:Evolution of a Free Parking Offset, Journal of Public Transportation, 2010

¹³ Baker, S. Judd, D and Oram, R, Tax-Free Transit Benefits at 30:Evolution of a Free Parking Offset, Journal of Public Transportation, 2010

¹⁴ Office of Parliamentary Budget Office, A Cost Estimate of Proposed Amendments to the *Income Tax Act* to Exempt Certain Employer-Provided Transportation Benefits from Taxable Income

vouchers, currently set at a maximum value of £55 per week. Individuals who use the scheme can save up to £933 per annum for a 20% tax payer and £623 for 40% and 45% tax payers. The vouchers can be given to any registered or approved childcare provider. Konings has shown that families with incomes of between £20,000 and £30,000 benefited the most from the voucher scheme¹⁵. Also noted to have benefited greatly were family groupings of single parents, manual workers and unskilled workers with a diverse take up across ethnic and regional lines. HMRC in 2007 estimated that 450,000 families were benefiting from this scheme.

In terms of operational implementation, any individual working at a firm that operated the scheme is entitled to the benefit, however self employed individuals are unable to claim the benefit. Due to the closed loop nature of the scheme the risk of fraud is minimised. In-work benefits or earned-income tax credits also create positive incentives for work by linking work to the recipient.

Childcare and transport have a number of similarities as both can create barriers to work. This negative impact is felt most keenly by lower income workers. In finding solutions for both Childcare and Transport there are policies which can have positive impacts through influencing wider social goals such as equality, congestion and safety.

The childcare voucher scheme was revised as part of the 2013 budget.

¹⁵ Joanna Konings, Childcare vouchers: who benefits? An Assessment of Evidence from the Family Resources Survey, The Social Market Foundation, 2011

8 Appendix B – Consultation

8.1 Introduction

The stakeholder consultation was designed to be undertaken in three stages. The first stage was with specialists and groups familiar with the bus industry and the three policy initiatives, while the second stage involved local government and transport authorities. The final stage will involve interaction with central government policy makers and the political parties.

46 organisations were targeted as part of stage 1 and 2 of the consultation. From mid-November 2013 to mid January 2014), we have conducted consultations with 48 individuals in 36 of these organisations. Additional interviews are scheduled for the first quarter of 2014.

The breakdown by category of Stage 1 and 2 stakeholders are provided below:

Category	Targeted Organisations	Consulted Organisations	Consulted Individuals
Local Government	6	5	5
Local Transport Authority / PTE or Equivalent	7	7	12
Bus companies	7	6	10
Local Transport Interest Groups	1	1	2
Employers	5	4	4
National Transport Interest Groups	7	6	6
Business Groups	8	4	6
Academic Specialists / Institutes	5	3	3
Total	46	36	48

The detailed list of groups and individuals consulted is provided at the end of the appendix.

8.2 Key issues highlighted from the consultations

The key points raised were as follows:

Issue	Details
Needs to be administratively simple for companies	Reducing administrative costs of running and operating a system would be key to increasing take-up by private firms of any such scheme. The 'third-party' administrator option was regarded as an attractive one by many employers consulted.
Logistically possible	Many of the stakeholders, such as TfL and other operators, did not believe that operationally or logistically, such a scheme would be complicated to implement. Multiple models, depending on the operator, could emerge, especially given the move towards smart-ticketing that is already taking place. For example a major operator is developing an e-commerce system to allow for multiple ticket sales to employers as well as to allow individuals to purchase an annual ticket through a monthly direct debit payment system.
Parking is a cost	Companies face a real cost in providing parking. One of the companies we consulted spends £2million on off-site parking, in addition to the on-site parking it provides. Therefore they often have a financial incentive to encourage more public transport.

<p>National vs local initiatives</p>	<p>The Bus2020 Manifesto outlined that such a scheme could initially be applied outside of London in order to reduce 'dead-weight loss' impact. This would however be very challenging to have different tax rules for different parts of the country. Therefore, the analysis is being undertaken to include London as part of this.</p> <p>However, a number of regions expressed an interest in undertaking this as part of a more localised trial (Merseyside, North Bristol)</p>
<p>Evidence of take-up and rise in patronage</p>	<p>Multiple employers (Heathrow, NHS North Bristol, RWE, UWE) noted that discounts have a notable impact on patronage. Therefore, the likelihood and evidence that a bus bonus scheme may work is there.</p>

9 Appendix C – Bus Bonus modelling framework

9.1 Introduction

This appendix describes the modelling framework used to calculate the costs and benefits of the proposed bus bonus scheme. We initially describe the inputs, key assumptions, calculations used in the revenue and demand modelling, and finally the calculations used in the welfare analysis.

9.2 Inputs

The inputs for the framework are derived from Department for Transport and National Travel Survey (NTS) data except where specified.

Input	Source
Number of passenger trips	DfT Bus Statistics, 2012/13, Table BUS0103
Patronage by ticket type	<i>Green Light for Better Buses</i> , DfT 2012, Figure 2.7
Patronage by journey purpose	NTS, 2012, Table NTS0409
Percentage of total employed working in companies with more than 9 employees	Business Population Estimates, BIS, 2012 and Labour Force Survey, 2012
Average revenue per passenger	DfT Bus Statistics, 2012/13, Table BUS0402
Mode share (car and bus)	NTS, 2012, Table NTS9903
Operating cost per vehicle km	DfT Bus Statistics, 2012/13, Table BUS0408
Vehicle kilometres travelled	DfT Bus Statistics, 2012/13, Table BUS0203b
Number of Vehicles	DfT Bus Statistics, 2012/13, Table BUS0602
Government support for bus services	DfT Bus Statistics, 2012/13, Table BUS0501a, Local Transport Capital Block Allocations

The model calculates impacts in the following geographical zones: London; English Metropolitan Areas; English Non-Metropolitan Areas; Scotland and Wales. Bus patronage is further broken down by ticket type categories, which are: Ordinary Adult; Season Ticket; Concessionary Fare; and Other.

The inputs listed above provide the base data for the year 2012/13. The model is then programmed to calculate the following:

- A Do Minimum scenario, which estimates the future year values for patronage and fares under no further government intervention
- A Do Something scenario, which estimates the impacts of the bus bonus scheme on patronage, by changing the assumed fare level in 2014/15

The Do Minimum scenario requires assumptions about underlying patronage and fares growth, which will be covered in the next section on assumptions.

The Do Something scenario requires further inputs on how bus users will react to an implied change in the fare level. Such changes in demand are derived from elasticity of demand inputs, which are as follows:

Fare Elasticity of Demand	Value	Source
Ordinary Adult, National	-0.58	Wardman and Muller, 2010
Season Ticket, National	-0.48	Wardman and Muller, 2010
Concessionary Pass, National	0.00	Wardman and Muller, 2010
Other including Free, National	-0.75	Wardman and Muller, 2010
London, Ordinary Adult	-0.57	Dargay and Hanly, 2002
English Metropolitan, Ordinary Adult	-0.47	Dargay and Hanly, 2002
English Non-Metropolitan, Ordinary Adult	-0.99	Dargay and Hanly, 2002
Scotland, Ordinary Adult	-0.82	Dargay and Hanly, 2002
Wales, Ordinary Adult	-0.95	Dargay and Hanly, 2002

The fare elasticities split by ticket type and by geographical area are combined by calculating the markup on ordinary adult for season ticket, concessionary pass and other fare elasticities and applying to the geographic-specific ordinary adult fare elasticity. For example, this means that the fare elasticity for a season ticket holder in Scotland is $(-0.48/-0.58) \times -0.82 = -0.68$.

In addition, the analysis of service changes as a result of increased patronage through the Mohring Effect requires the following further inputs:

Input	Value	Source
Travel Time Elasticity	-0.50	Balcombe et al (2004)
Wait Time value of time factor	2.00	WebTAG 3.5.6 (August 2012)

9.3 Assumptions

9.3.1 Salary sacrifice market size

The market size for those potentially benefitting from a salary sacrifice scheme is calculated to form a base market size for this group. The national split for commuting bus trips as a percentage of all bus trips is 18.3%. Using the Business Population Estimates data, the percentage of employees working at businesses of 10 employees or more is 73.5%. We assume that those working at businesses of nine employees or less, or those who are self-employed, would be less likely to take up a scheme that involves a small element of tax administration. Assuming that the nature of commuting for those working at small businesses is no different from those at larger businesses, we assume that 13.4% of all trips nationally are commuting trips. This is equivalent to 690 million trips that could be eligible for salary sacrifice.

We then controlled the market size further by take-up rates. NTS data (NTS 0708) indicates that

approximately 45% of the total employed population in the UK is in a salary band that would not be eligible for salary sacrifice, because they do not currently pay PAYE tax or pay minimal NIC contributions. As a result, the maximum take-up rate of the 690 million trips is set at 55%.

Based on take-up rates of bus discount schemes (not the current national concessionary scheme which allows passengers to travel for free, but in its pre-2006 form) of 40-50%, we set take-up of the remaining 55% at 45% of this (25%). This results in 172 million trips.

9.3.2 Maximum voucher value

The model is based on a perceived discount being received by a bus user as a result of not having to pay tax on the value of the bus ticket. The business model is based a maximum value of vouchers that are tax exempt. For example, a £700 annual voucher limit means that all bus fares up to £700 per year are tax exempt, but any purchased above that value are tax liable.

We assume a maximum voucher value of £700 per annum, which means that if 520 single trips are made per annum for commuting purposes, you receive a tax exemption on the first £1.35 of a single journey fare. For areas where the average single fare is above £1.35, we have assumed a lower discount in the model proportional to how much more than £1.35 the commuter has to pay.

9.3.3 Underlying trends: Do Minimum Scenario

Do minimum demand is based on a series of underlying trends which, in summary, results a 4% national decline in bus patronage between 2012/13 and 2015/16 if no further intervention is made.

Year on Year Change	2013/14	2014/15	2015/16
Real Fares (London)	2.00%	2.00%	1.50%
Real Fares (non-London)	0.50%	0.50%	0.50%
Headway	0.50%	0.50%	0.50%
GVA	1.92%	2.24%	2.58%
Employment	0.69%	0.69%	0.68%
Population	0.69%	0.59%	0.59%
Car Ownership	1.61%	1.58%	1.56%
Car Time	1.02%	0.98%	1.00%
Car cost	-1.91%	-3.64%	-2.02%
Rail Cost	1.00%	1.00%	1.00%

We assume no underlying growth in in-vehicle time, walk time or delay time.

We have also made supply-side assumptions for underlying service level trends. Variable unit costs are assumed to increase by 0.75% per annum. As a result of underlying headway increases of 0.50% per annum, bus fleet size is assumed to decrease by 0.30% per annum. Underlying trends in number of bus kilometres are determined by the increase in headway for all areas (-0.50% decrease per annum) and cuts in tendered services of -5.20% per annum between 2013/14 and 2015/16 for all non-London services. The resulting underlying trend in non-London areas is between -1.00% and -1.50% per annum until 2015/16.

9.4 Demand, revenue and cost modelling

9.4.1 Demand

The demand model is the driver of the entire modelling framework. Changes in demand for bus services are what lead to economic benefits, changes in revenue and changes in costs as a result of service level changes.

The model is based on a transport user's demand curve, where the price of travel is the generalised cost of travel. This model keeps the impact of fare changes and the impact of generalised journey time changes separate:

Generalised Cost = Fare + Generalised Journey Time

Changes in either element of generalised cost will affect demand. The magnitude of the impact on demand is determined by the elasticity of demand for the relevant elements of generalised cost:

Change in Demand (%) = Fare elasticity x Change in Fare (%) + Travel Time elasticity x Change in Generalised Journey Time (%)

For the implementation of the bus bonus scheme, the change in demand will largely be driven by the change in fare. The combination of a PAYE tax and NIC employee exemption is a 32% decrease in fare (for all fares below £1.35 per trip). The fare elasticities are multiplied by this percentage change to calculate a percentage change in demand.

There is also a 'feedback effect' from generated demand, where there is an increase in service frequency (decreases headway) as a result of an increase in demand. This is discussed further below. However, the resulting change in frequency changes the generalised journey time because average wait times decrease. Every minute of wait time saved is worth two minutes of journey time saved. We use this value of time factor to convert changes in frequency to changes in generalised journey time. The travel time elasticity of -0.5 is then applied to these changes in generalised journey time to calculate the percentage change in demand.

9.4.2 Cost

The bus bonus scheme does not directly change the costs to the bus operators. However, as mentioned above, changes in demand affect the frequency offered by bus operators. This follows the principles of the Mohring Effect, where an increase in frequency leads to an increase in demand. The increase in demand means that it is more efficient for bus services to operate. They will increase frequency as a result, capturing the extra demand. The improved frequency attracts further demand, and the virtuous circle continues.

As a result of the mechanics of the model, we have assumed that service frequencies are based on the previous year's change in demand:

Change in Headway (%) = - Change in Frequency (%) + underlying headway changes

Change in Frequency (%) = Previous year demand change on do minimum (%) ^0.6

Therefore:

Change in Headway (%) = - Previous year demand change on do minimum (%) ^0.6 + underlying headway changes

Percentage changes in vehicle kilometres operated are assumed to be equal to percentage changes in headway. The change in cost is subsequently based on the cost per vehicle kilometre.

9.4.3 Revenue

Farebox Revenue is simply calculated as the demand multiplied by the relevant real fares. However, the mechanics of the model means that, due to the fare decrease as a result of tax exemptions, this revenue figure will at first appear smaller than the policy would actually result. That is, this figure includes the revenue *as if* the operators offered the discount themselves. The farebox revenue paid by government through tax revenue foregone is calculated as:

Employee Tax Revenue Foregone = (Full fare – Fare after tax exemption) x Demand

As implied, this is equivalent to employee tax revenue foregone (the loss to government of foregone income tax and employee NIC). This value is added to farebox revenue to represent the true operator revenue as a result of the salary sacrifice scheme.

Additionally, the tax saving for employers as a result of the bus bonus scheme of 13.8% is quantified by multiplying all journeys that have been bought through the salary sacrifice scheme by 13.8%. Note that, as discussed in the next section, this represents a direct transfer from government to businesses.

BSOG is linked directly to increases in vehicle kilometres. As a result of any increase in demand, frequency will increase in the following year, followed by vehicle kilometre increases and therefore an increase in BSOG at the same rate per kilometre. However, in areas where BSOG is being devolved to local authorities, the value passed on to bus operators decreases over time, resulting in a full transfer in 2016/17.

9.5 Cost-benefit analysis and appraisal

The purpose of the cost benefit analysis is to analyse the economic costs and benefits of the bus bonus scheme compared to a situation where no further government intervention was made. The DfT's WebTAG provides the framework under which the majority of the analysis sits. However, due to the nature of the scheme (which is a transfer of tax resources from government to users and businesses) and the need to calculate wider economic benefits, we have not followed the guidance in some aspects of our analysis. We have noted these cases below.

9.5.1 Benefits

Benefits and disbenefits are experienced by those directly affected by the policy and also by third parties who have acquired some sort of benefit as a result of the policy. The benefits are grouped as follows: bus-user benefits; non-bus-user benefits; private sector provider impacts; and wider impacts

9.5.1.1 Bus-user benefits

User benefits are formed of two separate elements:

Fares benefits

The reduction in fares enjoyed by all passengers who take up the scheme, including generated passengers. This is calculated using the rule of a half:

Fares benefits = $\frac{1}{2} \times$ – change in fare x (Demand under Do Minimum + Demand under Do Something)

Generalised Journey Time benefits

The reduction in generalised journey time caused by increases in frequency as a result of the Mohring Effect. This is also calculated using the rule of a half and values of time as included in WebTAG 3.5.6:

GJT benefits = $\frac{1}{2} \times$ – change in GJT x Value of Time x (Demand under Do Minimum + Demand under Do Something)

9.5.1.2 Non-bus-user benefits

Non-user benefits are calculated on principles set out in WebTAG unit 3.13.2. Whilst this unit is usually used for rail appraisal, we have adapted it for use in this context. We have assumed a diversion factor of 31% for the number of kilometres travelled by a car driver as a result of an increase in the number of bus kilometres travelled. Simply put, for every 10 km additional bus kilometres travelled, we assume 3.1 km of the additional 10 km came from car drivers shifting mode to bus.

The remainder of the methodology is based on WebTAG unit 3.13.2: The diverted car kilometres are split by five congestion traffic bands, and by road type. Once split, we calculated the decongestion benefits by using the following values (also from WebTAG 3.13.2):

Values, pence, 2010		
	2010	2015
Weighted Average p/car km		
Congestion Band 1	1.2	1.3
Congestion Band 2	3.0	3.1
Congestion Band 3	10.5	10.7
Congestion Band 4	91.2	83.8
Congestion Band 5	159.0	175.4
Infrastructure	0.1	0.1
Accident	1.6	1.7
Local Air Quality	0.1	0.1
Noise	0.1	0.1
Greenhouse Gases	0.9	0.8
Indirect Taxation	-5.1	-5.0

9.5.1.3 Private sector provider benefits

Private sector provider benefits are based predominantly on the financial impacts on the bus companies. This includes the difference between the Do Something scenario and the Do Minimum scenario in:

- Operating costs
- Revenue
- Total government support

We also bring forward our calculation of the benefits of employers saving employer NIC. This is equivalent to 13.8% multiplied by the demand under the Do Something scenario, as described above.

9.5.1.4 Wider Impacts

The wider impacts calculated in this analysis is the value of jobs generated. Jobs are generated as a result of improved labour market accessibility.

The methodology used to calculate the generated number of jobs is based on the ability to continue carrying out activities as a result of the removal of bus services. This is covered in detail in papers produced by the Institute for Transport Studies, University of Leeds¹⁶. The estimated proportion of bus trips where the bus user is completely dependent on the bus to commute to work is formed through the following rationale:

- Percentage of trips which are commuting = 18%
- Percentage of bus commuters with no car access = 43%
- Percentage of bus commuters with no car access where the trip is greater than 3 miles = 59%

By multiplying all of these proportions, we can infer that 5% of all bus trips are dependent on the bus to commute to work. This is multiplied by the proportion of bus trips that are not diverted from car drivers (assumed to be 21%), which leads to a compound impact on 1% of all generated bus trips.

¹⁶ *Buses and Economic Growth, 2012 and Buses and the Economy: II, 2013*

Assuming that one full-time commuter will have to undertake 250 return trips per year, the generated number of jobs is:

New jobs through access = 1% x generated demand / 250

These generated jobs are then monetised by multiplying the number of jobs by the average between the national median salary (£25,603 in 2010 prices) and the annualised full-time minimum wage (£10,466 in 2010 prices), which is £18,035 per job.

9.5.2 Costs

Costs are made up of two broad categories:

1. Broad transport budget:

This is the change in subsidy for the bus market, caused by increases in BSOG as a result of service level changes and other devolved funding.

2. Lost Tax Revenue:

This is not usually taken into account in WebTAG methodologies, but due to the nature of this scheme, we have included the loss in income tax revenue as previously described, and the loss in employer NIC.

9.5.3 Appraisal Summary

The results of the appraisal are summarized in a table listing all monetised costs and benefits. The table presents annual values for 2015/16 only, at current values, but 2010 prices. A Benefit-Cost Ratio is formed because the lost tax revenue, the majority cost of the scheme, is taken into account in the costs in this appraisal.

Wider impacts are presented separately, and are the average number of jobs generated, and the annual monetised impact of these jobs.