Tax Incentives for Bus Commuters

Executive Summary

June 2017

This report, originally published in March 2014, has been updated to account for a wider range of benefits and to incorporate the latest bus travel statistics. This forms part of a wider programme of work to update the economic assessment of different interventions in the local bus market produced by Greener Journeys since 2014.

The initiative allows employers to provide their employees with vouchers to help pay for the cost of commuting to work by bus. The vouchers issued 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 54 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 – Bus Bonus operating model

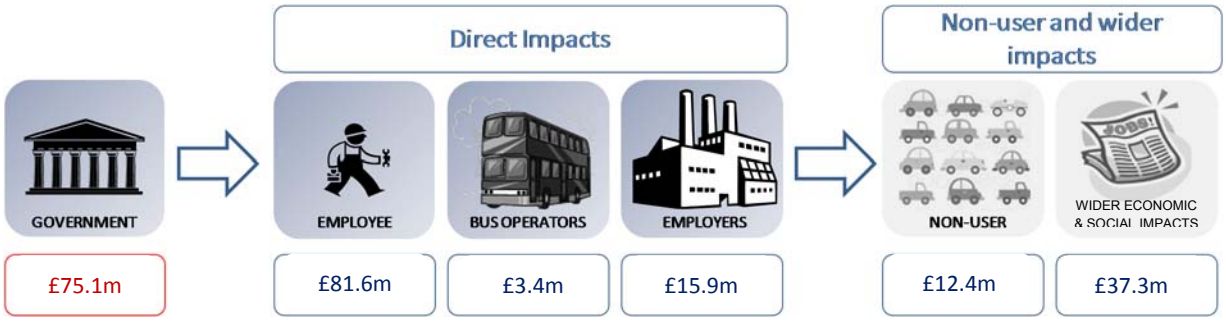
- The employer buys their employee a voucher that can be used to pay for bus travel.
- The voucher is produced by a third party supplier and issued directly to the employee.
- The employee uses the voucher to pay for stored travel rights (eg. carnet, season ticket or PAYG top-up) at a travel centre or online.
- The employee pays for the voucher via a salary sacrifice scheme before income tax and National Insurance contributions are deducted. The value of vouchers is capped at £700 per year for basic rate taxpayers – a saving of £224 per year.
- The bus operator invoices the third party supplier for the value of the voucher that has been exchanged for stored travel rights.
- The third party supplier invoices the employer for the value of the voucher issued plus an administration fee.

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 found there is a strong Business Case for the scheme, estimating that the scheme will generate a **net benefit of £75.1 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 2015/16.

Figure 1: Summary of the annual costs and benefits



The initiative is expected to cost the Treasury £75.1 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 £147.2 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 considers only 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 approximately £2 in benefits. This represents **high value for money** according to the Department for Transport's appraisal guidance.

These results are similar to those published in March 2014. The reason for this is that, although wider benefits have gone up, the latest bus statistics showing lower bus demand have caused user benefits to go down. Additionally costs have increased as a result of the inclusion of BSOG and concessionary fares.

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 £0.14 per trip in government support through BSOG.

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 'vouchers' to help pay for the cost of commuting to work by bus. The vouchers will be issued via salary sacrifice and be exempt from income tax and national insurance.

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

The analysis to support the Business Case is based on publicly available data[1] that has been assembled in a way that is consistent with the Department for Transport's guidance on transport appraisal[2] 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.

This analysis was originally published in March 2014. With the support from KPMG, Greener Journeys have now updated this report to account for a wider set of economic, social and environmental impacts, and a more comprehensive analysis of costs. This updated analysis has also incorporated the latest statistics available on travel demand and bus services.

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 in a way which is compatible with 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/p ublications/the-green-book-appraisal-and-evaluation-in-central-governent

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.

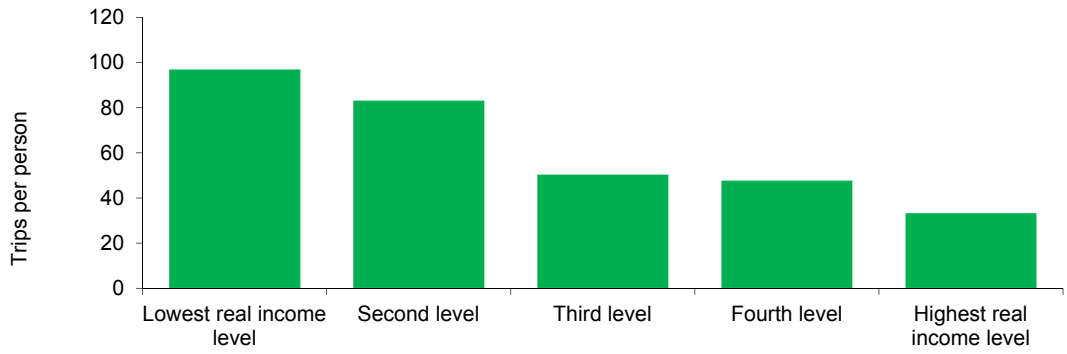
Buses are essential to get many people to work

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 & 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 200 million commuter journeys were undertaken via bus in Passenger Transport Executive areas in 2013[4], with a greater proportion of those trips undertaken by low income households (Figure 2).

Figure 2: Bus travel by household income quintile: England, 2015 (Source: National Transport Survey)



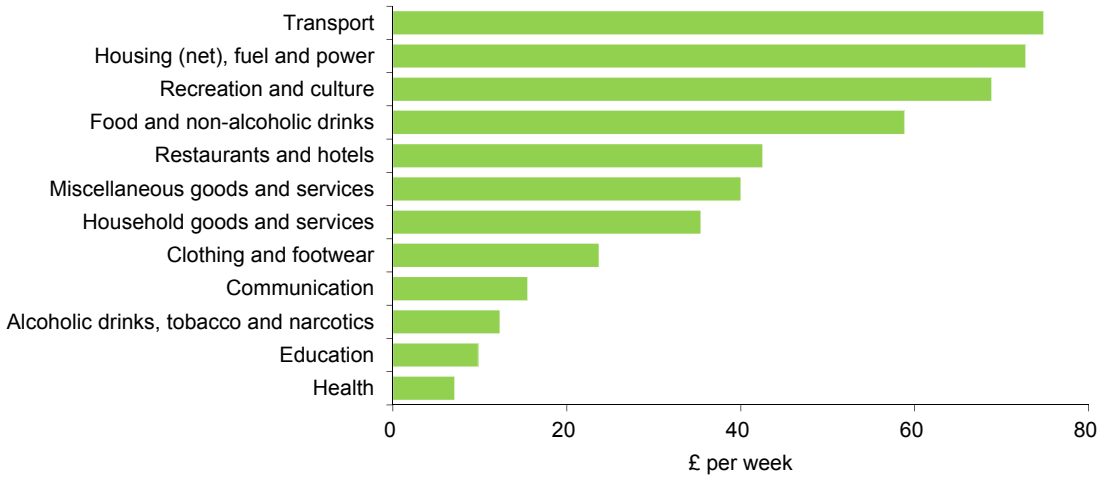
Transport is unaffordable to many

According to the Office of National Statistics, transport is now the highest expenditure for the average British household costing £74.8 weekly or 16.2% of total spending (Figure 3). Public transport services (including rail) make up £16.10 of this. Transport costs can therefore be a barrier to individuals accessing the labour market[5].

[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/pdfiles/3819-CO.pdf)

Figure 3: Household Expenditure per week 2015 (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 year[6].

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.

4.2 Operating model issues

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

[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

4.2.1 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 most in need of assistance.

A better option would be for tax exemptions on **vouchers or e-vouchers** (up to a certain cap) which can be used to purchase bus-travel products (carnet tickets, season tickets, PAYG top-ups). 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 NICs for both employees and employers. However, certain benefits-in-kind, such as salary sacrifice gym memberships, have only employee NICs exempted, with PAYE and employer NICs still due.

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 both the costs and benefits associated with the policy initiative would be.

The main advantage of exempting from both PAYE and NICs 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.

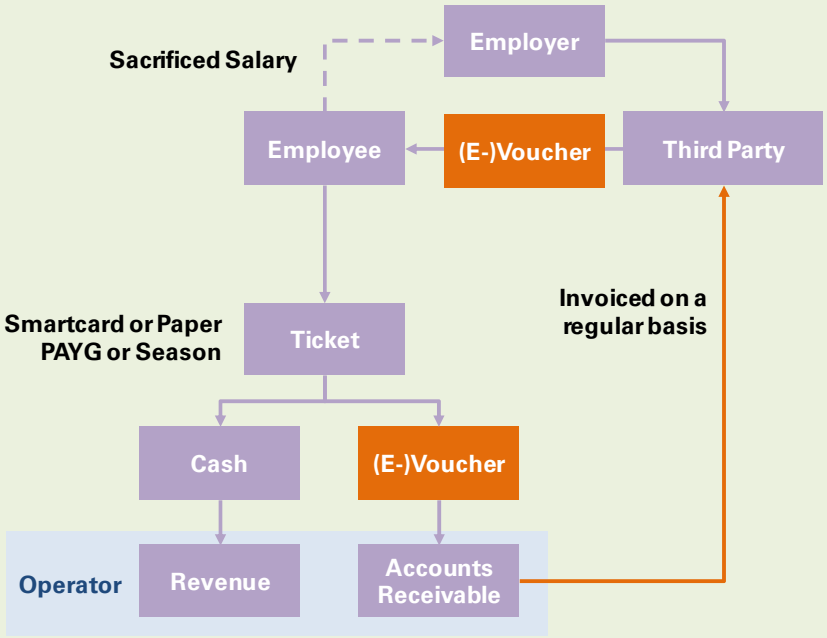
In order to undertake a locally targeted policy, one option is to look at taxes that are paid at the local level. An option may be to provide exemptions on business rates, again up to a certain level per employee, depending on total public transport expenditure by the company as part of the relevant 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 tax and/or NIC 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 2 below provides further details of how the scheme would work.

Box 2 – Bus Bonus operating model

- The employer buys the employee a voucher that can be used to pay for bus travel.
- The voucher is produced by a third party supplier and issued directly to the employee.
- The employee uses the voucher to pay for 'stored travel rights' (eg. a carnet, season ticket or PAYG top-up) at a travel centre or online.
- The employee pays for the voucher via a salary sacrifice scheme before income tax and National Insurance contributions are deducted. The value of vouchers is capped at £700 per year for basic rate taxpayers – a saving of £224 per year.
- The bus operator invoices the third party supplier for the value of the voucher that has been exchanged for stored travel rights.
- The third party supplier invoices the employer for the value of the voucher issued plus an administration fee.



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**: While the scheme can currently be rolled out on a voucher based system, it is also foreseen that smart-card systems would become increasingly the universal mode of ticket. Offering 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. Third party providers operate in transport markets in the US and 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 for their commute. Buses are particularly important to those on low and moderate incomes

[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

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 54 individuals representing 42 organisations (Appendix B). The vast 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 in 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 £75.0 million per year in foregone tax revenues from individuals and employers and reduced fuel tax revenues from car-based commuting. This is

equivalent to 0.3% of the 2015/16 government budget for transport spending of £28 billion[8]. Or, to put it in another context, it is about 8% of the £1.1 billion currently spent by local authorities in England alone[9] 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 billion[10].

In return, the benefits to users, non-users and the wider economy total £146.3 million. The **net benefit** of the Bus Bonus scheme is therefore estimated at **£71.2 million** (2010 prices). For each £1 of foregone tax, the initiative generates approximately £2 in benefits. This represents **high value for money** according to the Department for Transport's appraisal guidance.

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	£54.1
	Generalised journey time benefit arising from improvements in service quality	£27.6
2	**Non-user benefits**	
	Decongestion, Safety, Local Air Quality, Noise, Greenhouse Gases	£12.4
	Reduced fuel tax revenue	(£4.3)
3	**Employer benefits**	
	Employer NIC savings	£15.9
4	**Bus operator benefits**	
	Change in operating profits	£3.4
5	**Wider economic benefits**	
	Improved labour market accessibility	£8.7
	Health benefits from increased physical activity	£19.4
	Health benefits from increased employment	£0.5
	Volunteering contributions	£0.9
	Fiscal savings from increased education	£7.2
	Psychological well-being from mode shift from car to bus	£0.4
	Psychological well-being from reductions in commuting time	£0.2
	Option values	£0.9

[8] Table 5.2 Public Expenditure Statistical Analyses for 2016, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/539465/PESA_2016_Publication.pdf

[9] House of Parliament Standard Note 1499 "Buses: Concessionary Fares" 2013, available at www.parliament.uk/briefing-papers/sn01499.pdf

[10] 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

6	**Cost to Government** Foregone tax revenue BSOG Concessionary fares reimbursement	 £70.3 £3.4 £1.3

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 NICs. In the preferred option this is equivalent to a 37% discount on the fare and is estimated at £54.1 million.

Travel time benefits for bus users amount to £27.6 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 a modal shift as those formerly travelling by car now choose to take the bus. We estimate this to amount to 19.1 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 £0.8 million
- Accidents £1.8 million

In addition, the reduction in car kilometres is estimated to produce decongestion benefits valued at £9.6 million.

3. Employer benefits

A salary sacrifice scheme is also beneficial to an employer as it is able to forgo the employer's NICs which would have been paid but for the scheme. The estimated benefit of this to employers amounts to £15.9 million from which they will need to pay an administration fee to the third party supplier.

4. Bus operator benefits

Estimated net benefits to private sector operators amount to £3.4 million; this is composed of three factors. Operator revenue increases by £51.8 million as a result of the increased patronage of 62 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 £48.4 million.

5. Wider economic benefits

The implementation of a salary sacrifice scheme is projected to have wider economic benefits. By encouraging modal shift and increases in demand, operators are incentivised to increase supply, which benefits all bus users and leads to wider social, economic and environmental impacts.

Based on a recent study for Greener Journey independently produced by KPMG on the social value

of the bus[11], improved bus accessibility can lead to significant wider benefits to society. Underpinned by the research included in this report, we have estimated that the Bus Bonus could generate up to £38.2m of benefits. These include benefits in improved health, education, employment, volunteering activities, option values and psychological wellbeing.

Although these benefits are subject to higher uncertainty than standard user benefits, the literature on social impacts highlights the vital role of providing access to fundamental services and their benefits to society. In addition, 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.

In addition, this update of the analysis has quantified BSOG and concessionary fares, which were excluded in the previous version of the analysis. We have estimated that changes in BSOG and concessionary fares could cost up to £4.8m, as a result of increases in bus services.

It is important to note that the costs and benefits described above consider only 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 £1.65[12] per trip in government support whereas those who travel to work by bus only benefit from around £0.14[13] 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 NICs: £51.3 million
- Employer NICs: £19.4 million.

In addition to the loss of tax revenue, there are also additional costs of approximately £4.3 million associated with the project due to the loss of fuel duty revenue from car users transferring to bus from car.

[11] KPMG (2016), "A study of the value of local bus services to society" http://www.greenerjourneys.com/publication/study-value-local-bus-services-society/

[12] 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.

[13] DfT Statistics show that for 2011/12 the total subsidy to bus services in England (excluding concessionary travel and tendered services) was £420 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.

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 in 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

Appendices

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

6.1 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:

6.1.1 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, 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 million[14]. 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'*[15]. 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 using public forms of transport.

6.1.2 Canada[16]

The Canadian Government introduced a non-refundable tax credit for public transit in July 2006. The current level provides tax relief on $150 per month for 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.

6.1.3 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.

6.2 Childcare vouchers

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

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

[15] ibid

[16] 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 scheme[17]. 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, only individuals working at a firm that operates the scheme are entitled to the benefit, so self-employed individuals are unable to claim. Due to the closed loop nature of the scheme the risk of fraud is minimised.

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.

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

7 Appendix B – Consultation

7.1 Introduction

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

From mid-November 2013 to mid-February 2014, we have conducted consultations with 54 individuals from 42 organisations, broken down by category below.

Category	**Consulted Organisations**	**Consulted Individuals**
Central Government	5	6
Political Parties	1	1
Local Government	5	5
Local Transport Authority / PTE or Equivalent	7	11
Bus companies	6	10
Local Transport Interest Groups	1	2
Employers	4	4
National Transport Interest Groups	6	6
Business Groups	4	6
Academic Specialists / Institutes	3	3
Total	**42**	**54**

7.2 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 £2 million 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.

National vs local initiatives	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. However, a number of regions expressed an interest in undertaking this as part of a more localised trial (Merseyside, North Bristol)
Evidence of take-up and rise in patronage	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.

8 Appendix C – Bus Bonus modelling framework

8.1 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.

This modelling framework applied to the results presented in this report has been refined with respect to the framework underpinning the Bus Bonus report published in March 2014. As part of this update, we have included additional benefits and costs based on our latest research. The update has also incorporated the latest statistics on demand travel and bus services.

8.2 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, 2015/16, Table BUS0103
Patronage by ticket type	*Green Light for Better Buses,* 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, 2015/16, Table BUS0402
Mode share (car and bus)	NTS, 2012, Table NTS9903
Vehicle kilometres travelled	DfT Bus Statistics, 2015/16, Table BUS0203b
Government support for bus services	DfT Bus Statistics, 2015/16, 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 2015/16. 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 2015/16

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 mark-up 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)*-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)

8.3 Assumptions

8.3.1 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 to larger businesses. This is equivalent to 690 million trips that could be eligible for salary sacrifice.

We then controlled the market size further by considering the likely take-up rate. 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 626 million trips is set at 55% (344 million trips).

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, implying an overall take-up rate of 25% or 157 million trips.

8.3.2 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 on 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.

8.3.3 Underlying trends: Do Minimum Scenario

Do minimum demand is based on a series of underlying trends which, in summary, result in a 1.2% national decline in bus patronage in 2015/16 if no further intervention is made. This decline is generated as a result of the following assumptions on underlying trends such as the increase in car ownership and decrease in motoring costs.

Year on Year Change	**2015/16**
Real Fares (London)	1.50%
Real Fares (non-London)	0.50%
Headway	0.50%
GVA	2.58%
Employment	0.68%
Population	0.59%
Car Ownership	1.56%
Car Time	1.00%
Car Cost	-2.02%
Rail Cost	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. Underlying trends in the 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.

8.4 Demand, revenue and cost modelling

8.4.1 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 from generated demand, where there is an increase in service frequency (decreased headway) as a result of 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 of benefits and wider benefits continues. These benefits are described in the next section.

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 (%) ^0.6

Therefore:

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

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.

8.4.2 Revenue

Farebox revenue is simply calculated as the demand multiplied by the relevant real fares. However, the mechanics of the model mean that, due to the decrease in fare as a result of the tax exemptions, this revenue figure will at first appear smaller than the change that the policy would actually result in.

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, a form of revenue support paid by the government to operators based on fuel consumption, which was excluded in the previous version of the analysis published in March 2014, has been included in the results presented in this report. This is calculated based on the current payments received by operators by area type in Great Britain and the estimated change in vehicle km resulting from changes in services. This has a small impact on both operators' revenue and government costs.

Finally, concessionary payments are also included in the current version of the analysis, reflecting the potential increase in both operator revenue and government costs as a result of an increase in concessionary trips. Although services are likely to increase mainly during peak time as a response to demand increases in commuters, and concessionary pass holders are not eligible for free travel (before 9:30 AM) in the morning peak, we can expect a small increase in concessionary travel in the evening peak and throughout the day, depending on how service increases are implemented.

The inclusion of concessionary fares in the analysis has a small impact on both operators' revenue and government costs.

8.4.3 Cost

The modelling framework assumes that operators will expand operations but receive the same profit margin as in the base year. These profit margins are:

- Non-London Areas: 8.8%
- London: 2.6%

This is a national average of 6.7%, as reported by TAS in its most recent bus industry monitor summary[18]. The model then fixes these profit margins to calculate the resulting cost based on regional bus revenues calculated as described in 8.4.2 above.

8.5 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 is 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.

8.5.1 Benefits

Benefits and dis-benefits 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

[18] http://www.tas.uk.net/content/index.php/news/112-bus-profits-down-for-second-year-in-a-row-as-real-term-revenue-falls-again

follows: bus-user benefits; non-bus-user benefits; private sector provider impacts; and wider impacts

8.5.1.1 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 = ½ x – 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 A1.3.1[19]:

GJT benefits = ½ x – change in GJT x Value of Time x (Demand under Do Minimum + Demand under Do Something)

8.5.1.2 Non-bus-user benefits

Non-user benefits are calculated on principles set out in WebTAG unit A5.4.2. 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[20]. 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 A5.4.2: 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 A5.4.2):

Values, pence, 2010	
Weighted Average p/car km	**2015**
Congestion Band 1	1.2
Congestion Band 2	2.9
Congestion Band 3	9.8
Congestion Band 4	78.3
Congestion Band 5	167.2
Infrastructure	0.1
Accident	1.7
Local Air Quality	0.1
Noise	0.1
Greenhouse Gases	0.8
Indirect Taxation	-4.1

8.5.1.3 Private sector provider benefits

[19] Values obtained from WebTAG Databook (July 2016)

[20] As stated in the document "The Demand for Public Transport: a practical guide", TRL (2004)

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 NICs. This is equivalent to 13.8% multiplied by the demand under the Do Something scenario, as described above.

8.5.1.4 Wider Impacts

The wider impacts calculated in this analysis correspond to a set of wider social and economic benefits identified in the literature. Although some of them may be subject to high uncertainty, most of these benefits are increasingly accepted by the Department for Transport in economic appraisals.

Over the last years, Greener Journeys' assessment of different interventions in the local bus market has evolved to incorporate a larger set of wider benefits that captures the full value of the bus to society[21]. This has provided an incentive for Greener Journeys to go back to all their studies and update them to estimate the additional benefits researched throughout this process. This allows them to provide a consistent assessment across all policies analysed. As a result, the present analysis incorporates a larger set of wider benefits than the analysis published in March 2014.

The benefits that have been added and the methodology to estimate these are shown in the table below.

[21] See "A study on the local bus to society", KPMG (2016) available at http://www.greenerjourneys.com/publication/study-value-local-bus-services-society/

Policy / investment	Level of uncertainty (DfT perspective)	Sources	Methodology
Economic impacts			
Employment benefits (additional tax revenue or tax savings)	Medium	Buses and the Economy II, ITS report for Greener Journeys (2014), ONS, DfT WebTAG	An elasticity of journey time to employment (ITS 2014) is applied to changes in generalised journey time and the employment affected by the scheme (ONS) to obtain the number of potential new jobs. New jobs are then multiplied by the median wage (ONS) and the tax take on those jobs (WebTAG).
Health fiscal savings from increased employment	Medium	New Economy Tool (NET) (2016)	New jobs estimated as part of employment impacts are multiplied by the health fiscal saving of new jobs (NET).
Fiscal savings from increased education	Medium	New Economy Tool (2016) and National Travel Survey (2014)	The number of new people in education – estimated based on forecast additional bus demand that was not displace from other modes, the average proportion of education trips out of total bus trips, and education trips per person – is multiplied by the NET fiscal savings of new people in education.
Social impacts			
Option and non-use values	Low	ONS, UK Bus statistics, DfT WebTAG	The change in households with good access to bus services – estimated based on existing households with poor access to buses and changes in bus services (measured as vehicle km) - is multiplied by an option value from WebTAG.

Health and wellbeing	Low	New Zealand Transport Agency (NZTA)	The change in walked km as a result of trips shifting from car to bus and generated bus demand (not displaced from other modes) is multiplied by the NZTA health benefit per walked km.
Volunteering	Medium	Royal Voluntary Service (RVS) (2011)	Using shadow prices, average number of hours devoted to volunteering activities per person from the RVS, the proportion of how many of these activities may be accessed by bus, as well as generated bus travel demand by the scheme (not displaced from other modes), the value of the change in voluntary activity is estimated.
Psychological wellbeing	High	ONS research on commuting and wellbeing (2014), New Economy Tool (2016)	Using the improvement in wellbeing researched by the ONS as a result of increased commuting by public transport and reduced commuting time, as well as the value of emotional wellbeing from the NET, the value of changes to psychological wellbeing are estimated.

8.5.2 Costs

Costs are made up of two broad categories:

1. 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.

2. Indirect Tax Revenue:

Indirect tax losses are usually included in the present value of benefits when following methodology. However, as this analysis seeks to assess the impact on central government overall, rather than any one particular government department, losses in fuel duty revenue are included as part of the costs. We have not modelled the potential increase in fuel duty net of BSOG paid by bus operators to the government as a result of increased services. Therefore, this figure is likely to over-estimate the loss in indirect tax revenue to the government.

In addition, changes to BSOG and concessionary fares also constitute an additional small cost to Government associated with this policy.

8.5.3 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 as part of the net benefit of the scheme, and the benefit cost ratio, and are the average number of jobs generated, and the annual monetised impact of these jobs.