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# Public acceptability of health and social care funding options

## Funding options for the NHS and social care in the UK

Jon Sussex, Peter Burge, Hui Lu, Josephine Exley, Suzanne King
RAND Europe

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## Authors


- Jon Sussex
- Peter Burge
- Hui Lu
- Josephine Exley
- Suzanne King

**Corresponding author contact details:**

- jsussex@rand.org


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## Abstract

The demand for health and social care in the UK is growing, as a result of an ageing population and the increasing range of health care made possible by medical advances. Considerable additional funding will be needed in future. In this paper we report research providing new evidence about the preferences of the general public with regard to the various ways of raising the additional funds that NHS and social care in the UK will require, ranging from taxation to mandatory insurance, to voluntary insurance, to user charges.

We conducted focus groups with members of the public in all four UK countries and used the findings to design a discrete choice experiment (DCE). In the DCE, with a total of 2,756 respondents, we tested people's preferences between different ways of funding health care and social care by asking them to make a series of choices between pairs of options. The DCE results show that:

- Public knowledge of the scale of NHS and social care funding is poor and few people realise the large extent of private funding of social care.
- All sections of the public – across age groups, income groups, employment status, health status and countries of the UK – would like additional funding for social care to be raised in the same way as additional NHS funding.
- Across all sections of the population, people prefer a collective rather than individualistic approach to raising additional funds for both health care and social care.
- There is a preference for the percentage of income paid to be higher for people on higher incomes, that is for a progressive system. Those in higher income groups supported this too, albeit not quite as strongly as people on lower incomes.
- All age groups prefer that contributions should *not* differ by age. Older age groups had a stronger preference for this non-discrimination, but even the 18–24 age group did not, on average, want over-40s to pay more.
- There is a strong preference that raising additional funds for both health care and social care should be by a public body rather than a private company.
- There is support for some form of earmarking of the funds raised so that they can only be used for health care or social care.
- The public's preferences are very similar across England, Northern Ireland, Scotland and Wales, once age and socioeconomic characteristics are controlled for.

# Contents

# Summary

## Background

Many billions of pounds are spent every year in the UK on the NHS and social care. The demand for health and social care is growing, as a result of an ageing population and the increasing range of health care made possible by medical advances. Consequently, expenditure on the NHS and social care needs to grow continuously. Work by the Institute for Fiscal Studies and the Health Foundation has demonstrated that the need for NHS and social care expenditure is growing and hence considerably greater funds will be required in future, beyond current levels.[1] The good news is that the national income of the UK, and hence our ability to pay for care, is also growing. But how do we want to pay for NHS care and social care?

This is the second working paper produced from a 2-year project funded by the Health Foundation to determine the relative attractiveness to the general public (in England, Northern Ireland, Scotland and Wales) of the various options for funding NHS and social care in future. The first working paper[2] presented international experience with, and thinking about, funding options, based on evidence gathered in the first year of the research project. In that research we reviewed literature and interviewed 30 key informants in a range of high-income countries to understand the range of funding options in use internationally for health care and social care. We explored the drivers of recent or planned changes to funding arrangements and the contexts within which decisions around funding were taken. Overall, we found that:

- most countries included in the review fund health care primarily from public sources, such as taxation and mandatory health insurance, while social care often relies to a comparatively greater extent on individuals paying privately

- health and social care funding reforms tend to be incremental rather than radical, are path dependent (they are constrained by history and shaped by past decisions), and are catalysed by changes in economic conditions rather than by rising demand for care

- high-income countries have taken diverse approaches to tackling the need to increase health and social care funding and there is no single optimal, or commonly preferred, solution to achieving sustainable revenues.

The wide range of approaches we found internationally to funding health care and social care, in places facing much the same issues as in the UK, provided a solid evidence base for the options to think about in the UK context. Those options range from general taxation, to specific ‘hypothecated’ taxes dedicated solely to health and/or social care, to mandatory

insurance, to voluntary insurance, to user charges, that is individuals paying out of pocket to buy care when they need it. This second working paper sets out evidence from research by the authors, in the second year of the project that was designed to elicit and probe the views of the general public as to the relative desirability of those funding options.

Currently, throughout the UK, nearly 99% of funding for the NHS is raised from general, national taxation. A little more than 1% of NHS expenditure is raised from charges on patients (e.g. for dentistry and, in England, for prescriptions). Social care is funded in part from general national taxation and in part from local taxation (council tax), but the majority of social care is obtained by individuals either paying for their care out of their own pockets or receiving it unpaid from family or friends.

## Novel, detailed and rigorous research into the public's preferences

To our knowledge, the research reported here represents the first use of a discrete choice experiment (DCE) approach to investigate the UK general public's preferences for different ways to find additional funding for health and social care. A DCE is in essence a survey that asks numerous respondents to each make a series of choices between, in this case, pairs of alternative ways of funding NHS or social care, where each way is defined in terms of its characteristics – such as whether payment is related to a person's income or not, or whether the funds are collected by national government or some other type of organisation.

We use a rigorous approach, designing the DCE on the basis of detailed background research, discussion and consultation with experts in the subject area, thorough discussions with the members of the public at five focus groups, cognitive testing and piloting. By means of the detailed focus group discussions with 46 people and the DCE survey with another 2,756, we have been able to probe carefully the preferences of members of the general public in all four UK countries for how they would like the necessary additional funds to be raised in future to pay for the NHS and for social care.

We believe that this is the most detailed analysis of public attitudes toward meeting the extra costs of the UK NHS and social care systems in future that has so far been undertaken. Opinion surveys have repeatedly found public majority support in the UK for tax funding of the NHS. Our findings are consistent with that, but go deeper into the reasons. We have also extended the analysis of the public's preferences for how to raise additional funds in future for social care.

The result of our study is that we now have clear evidence about the public's preferences between different options for raising extra funds for NHS and social care over the coming years. The main findings are summarised in the following paragraphs and compared with current arrangements for funding NHS and social care in the UK.

## What we found

It is evident that many members of the general public do not know the scale of current expenditures on the NHS or social care. While nearly half of our survey respondents understood that the NHS is almost entirely publicly funded, with only 1% of its money coming from user charges, more than half did not realise that. How social care is funded is even less well understood, with little awareness of the heavy reliance on people buying it for themselves or on family and friends providing informal care.

We have found that the public's preferences for how to raise additional funding for social care are very similar to those for additional funding for the NHS. This contrasts with current arrangements, where social care funding is heavily dependent on self-funding by many individuals, while the NHS is 99% funded from general tax revenues.

Across the UK, there is a significant preference for the collectivist principles of 'everyone contributes' and 'everyone benefits'. This applies to additional funding for social care as much as for additional NHS funding. Across all sections of the population, people have a preference for a collective rather than an individualistic approach to raising additional funds (under the latter, you would only receive care to the extent that you pay for it or for insurance to cover it). NHS funding is currently already raised in this way, but our research indicates that the same approach would also be preferred for funding social care. That would represent a major change, given the large reliance on individuals funding their own social care currently.

Rather than everyone paying the same regardless of their income, there is a clear preference for the amount paid, for both social and NHS care, to rise at least in proportion to income, and a slightly stronger preference for it to rise more rapidly than income so that those who are better off pay a greater percentage of their income than those who are less well off. This would be the case if additional funding were to be raised via an increase in (progressive) income tax but not if it were to be raised via an increase in (flat rate) VAT, for example.

Respondents of all ages prefer that contributions should not differ by age, although age differentiation is less unpopular among the younger age groups, who would benefit from it. Thus we did not find support for the introduction of age discrimination in paying for NHS or social care.

The public have a strong preference that raising additional funds for both NHS care and social care be undertaken by a public body (rather than a private company or a charity). This is in line with current arrangements for the NHS and for publicly funded social care.

However, we find that the public's preference is for the body that receives the additional funding to be constrained to spend all of the funds only on health care or social care respectively. This indicates support for some form of hypothecation of taxes to provide the additional funding needed for NHS and social care. In other words, a government

undertaking that the revenues raised by a specified tax will only be used for the purpose of funding health care and/or social care, and nothing else. Hypothecation of taxes for health and/or social care has often been discussed in policy circles but does not currently exist in the UK.

We find that funds being received and controlled by a devolved/regional government body is slightly preferred to that being by the UK national government.

A final, important conclusion we draw from the focus groups and the DCE is that the public's preferences are generally very similar across England, Northern Ireland, Scotland and Wales. Funding for the NHS is raised in much the same way in all four countries, although in England there are still prescription charges (unlike in the rest of the UK). Social care funding is also similar across the four countries, although public funding is slightly more generous in Scotland than in the other three countries. We found in all four countries a shared desire for a collective approach to funding NHS and social care; a shared preference that contributions should be proportional or progressive with respect to income; little interest anywhere in older people being required to contribute more than younger people; and a common desire that funds should be raised and controlled by a public (not private) body, and preferably one where the funds raised are ringfenced to be spent only on health care or social care respectively.

# 1. Introduction

This section sets out:

- the background to the research reported in this working paper
- the motivation behind, and scope of, the research project of which it is a part
- what recent opinion surveys have shown about public preferences for ways to fund care
- the structure of the rest of the working paper.

## 1.1 Finding the funds for NHS care and social care

Many billions of pounds are spent every year in the UK on the NHS and social care. The demand for health and social care is growing, as a result of an ageing population and the increasing range of health care made possible by medical advances. Work by the Institute of Fiscal Studies and the Health Foundation has demonstrated that the need for NHS and social care expenditure is growing and hence considerably greater funds will be required in future beyond current levels.[1] The good news is that the national income of the UK, and hence our ability to pay for care, is also growing. But how do we want to raise the extra funds needed for the NHS and for social care? By raising taxes (and which types of taxes), by taking out insurance, or by simply paying out of our own pockets whenever we need the NHS or social care?

In this working paper we describe the results of our research into the answers to those questions. This is the second paper produced from a 2-year project funded by the Health Foundation, to determine the relative (un-)attractiveness to the general public in the four UK countries of the various options for funding NHS and social care in future – see Box 1. The first working paper[2] presented international experience with, and thinking about, funding options, based on evidence gathered in the first year of the research project. In that research we reviewed literature and interviewed 30 key informants in a range of high-income countries to understand the range of funding options in use internationally for health care and social care. We explored the drivers of recent or planned changes to funding arrangements and the contexts within which decisions around funding were taken. Overall we found that:

- Most reviewed countries fund health care primarily from public sources, such as taxation and mandatory health insurance, while social care often relies to a comparatively greater extent on individuals paying privately.

- Health and social care funding reforms tend to be incremental rather than radical, are path dependent (they are constrained by history and shaped by past decisions), and

are catalysed by changes in economic conditions rather than by rising demand for care.

- High-income countries have taken diverse approaches to tackling the need to increase health and social care funding and there is no single optimal, or commonly preferred, solution to achieving sustainable revenues.

**Box 1: Background to the study**

The Health Foundation-funded research project undertaken by RAND Europe, the European Observatory on Health Systems and Policies and the Personal Social Services Research Unit, brings a new perspective to the discussion of how to fund NHS and social care, by combining three dimensions:

- thinking about the funding of **health care and social care together** – considering one in comparison with the other throws light on both
- collecting international experience and **current thinking about ways forward** – to generate options, but not stopping there
- going on to test the **public acceptability** of those options – building evidence on which characteristics of funding options make them, if not exactly popular, then at least palatable.

The 2-year programme of research, from summer 2016 to summer 2018, had the following main phases.

1. A review of literature on health and social care funding arrangements in countries that face challenges comparable to those in the UK.
2. Interviews with experts internationally in the field of health and social care funding.
3. Detailed 'deep dives' into the details of particularly interesting or novel arrangements and proposals.
4. Leading to a shortlist of funding options, the characteristics of which are discussed in focus groups of the general public and tested in a discrete choice experiment in all four countries of the UK, to determine preferences and trade-offs between key attributes of those options.

The intention is to provide evidence and improve the quality of debate, not to make recommendations. The findings from the first three of the phases listed were the subject of the first working paper.[2] The current working paper presents the results of the focus groups and discrete choice experiment in phase 4.

The wide range of approaches we found internationally to funding health care and social care in places facing much the same issues as in the UK provides a solid evidence base for the options to think about in the UK context. Those options range from general taxation, to specific 'hypothecated' taxes dedicated solely to health and/or social care, to mandatory insurance, to voluntary insurance, to user charges, that is individuals paying out of pocket to buy care when they need it. The present working paper sets out evidence from research by

the authors in the second year of the project, research that was designed to elicit and probe the views of the general public as to the relative desirability of those funding options.

It is worth noting at the outset that what policymakers and the people who advise them may think of as the way forward is not automatically guaranteed to match the views of the general public. An online survey of 494 researchers and respondents from health care payers, governments and health care-related industry internationally found in 2012 that for increased funding of health care (in this case) 'taxes on cigarettes/alcohol were by far considered the most politically feasible option', although income and corporation taxes were also popular options.[3] But is this what the general public would prefer? A recent King's Fund and Health Foundation working paper describes the unresolved difficulties that policymakers in England have had in trying to identify how to fund social care in the face of growing demand: 'Since 1998, there have been 12 green papers, white papers and other consultations, as well as five independent commissions, all attempting to grapple with the problem of securing a sustainable social care system.'[4] But what approach to funding NHS and social care do the general public actually want when faced with the inescapable demand for increased expenditure on care? To help answer that question, we have set out to provide evidence to policymakers about the preferences of the general public in the UK between the different possible ways of funding NHS and social care.

In this paper we describe the method, findings and conclusions of our research to understand more about the preferences of the general public in England, Northern Ireland, Scotland and Wales concerning how to raise additional funds to fund the NHS and fund social care. To do this, we have taken a new approach to revealing the general public's views on the least unpalatable way to pay for NHS and social care. We have done this by means of a 'discrete choice experiment' (DCE) conducted with over 2,700 members of the public across the four countries of the UK. The DCE is explained fully later in the paper, but in essence it starts with the attributes of different ways of funding care and then asks people to choose between different combinations of those attributes.

## 1.2 Key features of NHS and social care funding in the four UK countries

Current arrangements for funding NHS care are very similar across the four UK countries, although with differences in use of prescription charges (Box 2). Funding of social care is rather different than for NHS care, but the four UK countries fund social care similarly, although with important differences in how much money is levied by local authorities through user charges (Box 3).

**Box 2: Funding NHS care in the UK: key points**

- Throughout the UK the NHS:
  - provides near-comprehensive health care to all UK residents, predominantly free of charge to the patient at the point of use
  - is 99% funded from general taxation at a UK level – that is, from the total 'pot' of UK government revenues from all taxes and other sources, including National Insurance contributions
  - is not paid for by any specific tax – in other words, there is no 'hypothecated' tax funding of the NHS
  - is not funded by local taxation
  - is 1% funded from patient charges, including prescription charges and dental fees.

- In the 2016/17 financial year, total UK government expenditure on the NHS (operating expenditure and capital expenditure combined) was £143.6bn (source: HM Treasury 2017,[5] Table A.11), which is equivalent to £2,187 per person. Government expenditure on the NHS ranged from £2,169 per person in England to £2,233 in Wales, £2,240 in Northern Ireland and £2,332 in Scotland (source: HM Treasury[5] 2017, Table A.15) (all figures in this bullet point are in 2016/17 prices).

- UK residents buy additional health care out of their own pockets, ranging from over-the-counter (non-prescription) medicines to non-emergency surgical procedures.

- In 2016, 10.5% of UK residents were covered by additional, voluntary health insurance for non-emergency care in order to have the option of treatment at their convenience rather than having to join NHS waiting lists, or because they prefer to be treated in private facilities.[6]

- The only significant differences among the four UK countries in how NHS care is funded is the presence or absence of charges for prescriptions dispensed outside hospital. Until 2007, prescription charges applied throughout the UK, but they were abolished in Wales in that year, in Northern Ireland in 2010 and in Scotland in 2011. Charges continue to be levied in England, and in the year 2017/18, £8.60 per prescription for the non-exempt population (meaning, essentially, that charges are paid only by adults aged 18–60, excluding full-time students, some people on low incomes, pregnant women, women within 1 year of childbirth, and people with certain specified health conditions).

**Box 3: Funding social care in the UK: key points**

- Unlike NHS care, funding for social care comes mostly from private sources.
- Not only that, a large portion of social care is provided informally, by family and friends. Estimates from the National Audit Office (NAO) for England in 2014 showed that the informal care being provided was worth between £55bn and £97bn, which is much greater than the amount of public spending on social care.[7]
- Local authorities (LAs) have the primary responsibility for public funding of social care in the UK, except in Northern Ireland, where five health and social care trusts (HSCs) have this responsibility. In England in 2016/17:
    - £14.8bn was spent by LAs on adult social care (net current expenditure)
    - £2.4bn was contributed by the NHS to social care. Although the NHS focuses on health care, it does contribute to some social care to improve health outcomes.[8]
- In England, a Social Care Precept was introduced in 2016/17, allowing local government to increase council tax (a form of tax based on house value) by up to 3% per year to pay for more social care.
- Northern Ireland, Scotland and Wales each receive a block grant from the UK government (determined by the 'Barnett formula') and have autonomy to decide how to spend their funds, which are then allocated to LAs and NHS organisations. Each country also has autonomy to set their own limits on the value of assets that a person can have while still qualifying for public funds. That ranges from £23,250 in England and Northern Ireland to £26,500 in Scotland and £30,000 in Wales (for care in Wales in a care home, though an asset limit of £24,000 applies in Wales for care in the recipient's own home).
- With the exception of Scotland, social care is not free of charge unless the recipient passes a means test. All countries have charges on residential care that vary by country and the recipient's assessed income.

## 1.3 What do we know about the public's preferences for funding the NHS and social care?

From time to time, samples of the UK population are asked in surveys about their preferences for how NHS care might be paid for. In April 2018, the King's Fund published an analysis of data from the British Social Attitudes (BSA) survey conducted with a representative sample of adults from England, Scotland and Wales (but not Northern Ireland).[9] The most recent round of the survey had been held in July–October 2017 and showed high and increased recognition that NHS funds need to be expanded, with 86% of respondents in 2017 considering that the NHS faces a 'severe' or 'major' 'funding problem' (compared with 72% in 2014). Survey participants were presented with a range of funding

options and asked: 'If the NHS needed more money, which of the following do you think you would be prepared to accept?' The options offered in the BSA were as follows, and respondents were required to select just one:

- pay more through the taxes I currently pay
- pay more through a separate tax that would go directly to the NHS
- pay for non-medical costs in hospital, like food and laundry
- pay £10 for each visit to a GP or local A&E department
- ending exceptions from current charges
- none of the above; the NHS needs to live within its budget
- don't know.

Faced with that question and choice, 26% of respondents to the 2017 survey opted to pay more through existing taxes and another 35% favoured a separate tax that would 'go directly to the NHS'. Thus, in total, 61% of respondents opted for increased taxes, up from 41% in 2014. The three options for increased out of pocket payments were, combined, chosen by 21% of respondents, down from 29% in 2014.[9] Raising taxes to pay for increased NHS funding had majority support across all income groups and age groups.

The House of Commons Health and Social Care Committee and the Housing, Communities and Local Government Committee jointly reported in June 2018 that a majority of the members of a 'citizens assembly' they had convened were in favour of an entirely publicly funded system of the personal care element of social care. The same citizens assembly also had a two-thirds majority in favour of the additional social care funding needed coming from a tax earmarked as being for that specific purpose, as opposed to from general taxation.[10] The UK public are used to funding the large majority of NHS expenditure through taxation (including National Insurance): 99% of NHS funds currently are from general taxation and only 1% are from charges on patients, for example for dental work and (in England, though not the rest of the UK) for prescriptions. By contrast, although there are some differences between the countries of the UK in how social care is paid for, in all of them most adult social care is either paid for by the person receiving the care or their families; or it is provided without payment by family members (commonly the spouse or children of the person requiring care). Nevertheless, public (tax) funding of adult social care is large in absolute terms; amounting to around £17bn in England alone in the 2016/17 fiscal year.[8] Public understanding of how social care is funded and organised, for example that it is not part of what the NHS provides, is limited.[11] This point has been borne out in our own research, as described below. In that context, it is not surprising that the question of how to pay for social care, unlike for NHS care, has not (to our knowledge) been explicitly asked in a published survey during the past decade.

While DCEs have frequently been used to help prioritise health care expenditure[12] and to help evaluate individual health technologies,[13] we have not been able to find any published DCEs addressing the public's preferences for how to fund NHS or social care in the UK. The

feasibility of using a DCE for this purpose has been demonstrated by studies in Denmark with members of the general population[14] and in Hungary with patients.[15] A DCE has similarly been used to determine public preferences in a region of Italy for different mixes of tax versus voluntary insurance and out of pocket funding of long-term care (an important part of adult social care).[16] As far as we are aware, the DCE reported in this paper is the first to test public preferences across health and social care funding options in the UK.

## 1.4 Structure of the working paper

The remainder of the paper is structured as follows. Section 2 describes the methods used in the research to test the public's preferences. The findings are presented in Section 3. Section 4 then concludes by summarising what the research reveals about the public's preferences between alternative ways of raising additional funds for NHS care and social care in future.

# 2. Methods

- This section explains how we conducted the research into the public's preferences for funding the NHS and social care to ensure robust findings.
- We do this first by describing the overall approach and then detailing how we undertook each of the three stages:
    - workshop with policy experts
    - five focus group discussions
    - discrete choice experiment (DCE) survey.

## 2.1 Overview

The robustness of the results from our research is ensured by the method we adopted, which is described in the following pages. However, readers keen to move directly to the findings can safely skip this section and move straight to the following 'Findings' section of the report.

In the first year of our research we reviewed international experience in funding health and social care.[2] We:

- identified examples of funding configuration for health and social care, as well as changes that have been implemented or are being considered in a range of high-income countries
- explored the drivers of recent or planned health and social care funding changes and reforms, and the contexts within which decisions around funding were taken
- highlighted key points that inform which options could be considered for funding NHS care and social care in the four countries of the UK.

Armed with these findings, we sought in the second, final, year of the project to identify the acceptability to the general public in all four countries of the UK of the different options for funding NHS and social care. To do that, we undertook three successive stages of work, with each stage providing information to feed the next, namely:

- a workshop with policy experts
- five focus group discussions
- a DCE survey.

At each stage we took what we had learned from the preceding stage of our research as the starting point. Thus, we commenced the final year of research by running a workshop with health and social care funding policy experts from the four UK countries. In the workshop we asked the participants to consider the appropriateness and feasibility, from their perspective, of each of the funding options. The purpose of the workshop was not primarily to identify the funding options that the participants themselves would prefer, but rather to tease out and

categorise the attributes of the different ways of funding NHS and social care that were determining their preferences between the options.

The workshop provided clarity about the key attributes (criteria) that discriminate between different ways of funding NHS care or social care. This enabled us to then design the structure and content of focus group discussions to be held with members of the public aimed at compiling evidence about the public's range of views and preferences. How to pay for NHS and social care is a large and difficult subject to attempt to cover during a discussion in a focus group. To make those discussions as productive as possible required clarity from the outset about how best to focus and constrain them without thereby losing important information.

Analysing the themes that emerged from the five focus group discussions, we were able to specify a smaller number of attributes of greatest importance to the general public, different degrees of which could be used to characterise any particular option for funding NHS or social care. It was necessary to identify a limited number of the most important attributes so that we could conduct a DCE based on them.

A DCE requires survey respondents to choose between packages of attributes, which in this case would span a diverse set of possible funding options. Respondents make a series of binary choices[1] between pairs of options with differing levels of one or more of the attributes: do they prefer option A or option B as a way of funding care? Respondents in effect trade off the relative importance to them of the different attributes making up these options. Thus, they reveal how much they are willing to accept compromises in some directions in order to gain more of other outcomes that they value.[2] Analysing the results of the DCE survey provides more nuanced evidence about the general public's preferences than can be obtained by simply asking respondents outright to select their single preferred funding option.

The strength of a DCE approach is that it allows for multiple criteria (attributes) to influence the choices made. It suffers from the weakness that the preferences are revealed in a hypothetical way, but it asks the hypothetical questions in a much more nuanced way than a straightforward opinion survey, while doing so in a way that requires only straightforward choices to be made by the participant: would they prefer option A or option B? It might be argued that respondents could have difficulty understanding the implications of their choices for themselves and for other people. However, that possibility is always present when evaluating policy choices; and when individuals vote at the ballot box. It is nonetheless

[1] It is possible to construct a DCE that permits a third option of neither A nor B. We did not take up that option as health care and social care do have to be funded and we were concerned that respondents should think carefully about why they might prefer one way of funding health care, or social care, over another. Offering a 'neither' option would have offered an easy box to tick as a way of avoiding thinking carefully about the issues.
[2] In scoping the study we considered a number of different possible preference elicitation techniques, including a range of forms of DCEs and best–worst scaling (BWS). We concluded that for this context, where the policy interest is specifically in packages of attributes, a DCE approach was the most appropriate.

important to know what those choices are. Furthermore, by linking people's responses to information about their personal circumstances (age, gender, income level, country of residence, etc.) a DCE enables us to test whether preferences change according to any of those factors.

## 2.2 Workshop with policy experts

The four-hour workshop was held in London in July 2017. It brought together policy experts from the four countries of the UK to explore the perceived strengths and weaknesses of different options for funding NHS and social care. The overall objective of the workshop was to identify the key attributes (characteristics) of different ways of funding NHS and social care that make those options more or less palatable. The attributes would then be discussed in focus groups with members of the public.

In addition to members of the research team there were 12 participants in the workshop: four members of our study's Expert Reference Group and eight policy stakeholders invited for their expertise and direct experience of policy for funding health and social care in one or more of the four countries of the UK. The 12 participants were balanced according to whether their primary expertise was in the funding of health care, the funding of social care, or both. Between them they had expertise and experience of NHS and social care funding policy in all of England, Northern Ireland, Scotland and Wales.

Prior to the workshop, the participants were provided with a summary of the findings from our first year of research on funding options in other high-income countries. In advance of the workshop, participants were asked to think about the feasibility and appropriateness of different funding options for social care and NHS care respectively within the country or countries of the UK with which they were most familiar.

We started the discussion at the workshop by reviewing participants' views on the feasibility and appropriateness, first for social care and then for NHS care, of the main funding options found in the first phase of our research,[2] namely:

- general tax on expenditure (e.g. VAT)
- general tax on income
- general tax on wealth
- hypothecated tax on expenditure (e.g. taxing sugary drinks to fund the NHS)
- hypothecated tax on income
- hypothecated tax on wealth
- mandatory insurance

- voluntary insurance
- out of pocket expenditure, that is user charges.

We then teased out in group exercises and plenary discussions what made those options appear relatively more or less feasible and appropriate in the eyes of the policy experts. Finally, we discussed whether the relative palatability of different funding options would likely be altered depending on whether UK GDP were to grow steadily (at around 2.5% per year) or stagnate over the coming years; and on whether the distribution of income across the population were to become more or less unequal than it is now. The outcomes of the discussions are described in the following Findings chapter.

## 2.3 Focus groups

The aim of the focus group discussions (FGDs) was to gain insight into the public's perspectives on how the predicted funding shortfall for health and social care should be met, particularly where extra money might come from and why people chose the sources they did. The FGDs were undertaken in five locations across the UK (Belfast in Northern Ireland, Bridgend in Wales, Livingston in Scotland, and Middlesbrough and St Albans in England) during September 2017. There were nine or ten participants at each workshop, 46 participants in total. They were purposively selected to ensure representation at each FGD across the whole range of: age group, gender and socioeconomic status (see Table 1). Recruitment was undertaken by a market research company, who contacted potential participants by telephone and administered a recruitment questionnaire prepared by members of the research team (SK, JE, JS).

**Table 1: Focus group participants (n=46): summary statistics**

| | | Number in sample | % in sample | % of UK 20+ population* |
|---|---|---|---|---|
| Gender | Female | 24 | 52% | 52% |
| | Male | 22 | 48% | 48% |
| Age | 20–29 | 8 | 17% | 18% |
| | 30–39 | 10 | 22% | 17% |
| | 40–49 | 7 | 15% | 19% |
| | 50–59 | 9 | 20% | 16% |
| | 60–69 | 7 | 15% | 14% |
| | 70+ | 5 | 11% | 15% |
| Socioeconomic status | AB | 8 | 17% | 22% |
| | C1 | 17 | 37% | 31% |
| | C2 | 8 | 17% | 21% |
| | DE | 13 | 28% | 26% |

* Gender and age are percentages of UK 20+ population (source: 2011 Census: Usual resident population by five-year age group and sex, local authorities in the United Kingdom, ons.gov.uk). Socioeconomic status is percentage of UK 16–64 population of household reference persons (source: http://www.ukgeographics.co.uk/blog/social-grade-a-b-c1-c2-d-e based on 2011 Census).

In each group we wanted a spread of age groups and social grades represented, roughly equal numbers of men and women, and some participants who have children and some who do not. Thus, we tried to ensure that the FGD participants would be reasonably 'typical' members of the public with respect to their knowledge and understanding of the topic area. For that reason, we excluded people who had participated in more than two focus groups or depth interviews of any kind in the past 7 years, or if they had been in one or more such discussions of health or social care funding. People who were working in health or social care, or who had partners or close relatives working in those sectors, were also excluded. Participation was voluntary and participants were free to withdraw from the study at any time without giving a reason, although none did. FGDs were held in the evening in community locations. Participants were compensated for their time and refreshments were provided.

Two researchers moderated the FGDs: one researcher (SK) facilitated the conversation while another (JE) took notes, recorded the interactions within the group and provided information about approaches to funding used by countries outside the UK. With consent from participants, FGDs were audio-recorded.

The FGDs followed a semi-structured format, which allowed for reflexive questioning to understand how participants defined health and social care, how they thought these services were funded, how additional funds might be raised, and to explore the underlying factors that participants were using to make their choices.

In the first FGD (St Albans) the discussion was split into two parts, with health and social care being discussed separately. However, it became clear that participants did not have a clear understanding of the difference between the two, so for the remaining FGDs participants were asked about both health and social care upfront to help them identify differences between the two types of care. After this initial discussion, the focus groups were then presented with working definitions for the purpose of the remaining discussion: health care was defined as 'any service provided by the NHS' and social care as 'in support of activities of daily living that the elderly or disabled might need help with'.

It also became clear in the first FGD (St Albans) that providing some factual information was desirable to support the conversation and enable the discussion to move on. For the second and subsequent FGDs the research team therefore had available simple infographics on: UK population size and age distribution, factors associated with the rising costs of the NHS, published predictions of shortfall based on different efficiency savings,[3] mean earnings, and household wealth by age group. In the last four FGDs (Livingston, Middlesbrough, Bridgend, Belfast), the infographics were introduced by the facilitator if and when appropriate. Depending on the ideas put forward during the FGDs, additional caveats were introduced so as to keep the discussion focused on ways of raising funds and not sidetracked into issues beyond the scope of the research. In particular, when necessary, the facilitator advised the focus groups that:

- making the system more efficient alone would not be enough to meet the funding shortfall
- for the purposes of the discussion it should be assumed that it is not possible to take money from other government budgets, for example defence or international development aid.

The facilitator's guidance notes for the last four FGDs are in Appendix A. These should not be taken as implying a fixed order in which points were discussed, but they show the topics that the facilitator ensured that each discussion considered. The amount of time spent on different topics and the extent to which different topics were returned to during the flow of the discussion differed between the FGDs.

After each FGD, one researcher (JE) listened to the recordings and made detailed notes. The data from the FGDs were analysed thematically. A coding frame was developed based on the questions used in the FGD guide and ideas emerging during the data collection as identified by two researchers (JE, SK). The analysis of the FGDs was initially by the two researchers who attended all five workshops (JE, SK). They then discussed their findings with the other members of the research team (PB, HL, JS) in a workshop meeting. The outcome of the meeting was agreement about the key points from the FGDs. These were captured in a briefing note to the project's Expert Reference Group (see Appendix B) for

[3] From the Health Foundation's 'Health and social care funding explained' webpage: http://www.health.org.uk/Health-and-social-care-funding-explained (accessed 1 September 2017).

their review and opportunity to probe and question. In a detailed telephone conference with that Group, the FGD findings were then used to identify and agree the nature of the funding option choices that would be offered in the DCE.

The specific findings from the FGDs are described in Section 3.

## 2.4 DCE survey

A decision made at the outset when the research study was commissioned was that the choices that we would ask respondents to consider in the DCE would relate to different funding models, built up from a generalised set of attributes describing how the models work and the principles underpinning them. The intention was not to get into specifics, such as whether a certain named type of tax should be used, but rather to allow this to be inferred by asking people to choose between different combinations of attributes of potential funding systems.

The DCE survey was run across all four countries of the UK in the spring of 2018 as a web-administered survey, using an existing panel of the general population from which a controlled sample was drawn. A market research company, Research Now, hosted the surveys and provided access to their online panels from which to recruit the respondents. The intention was to achieve responses from 2,500 members of the population, as shown in Table 2.

**Table 2: Planned sample sizes for the DCE survey**

| Country of the UK | Pilot survey | Main survey | Total |
|---|---|---|---|
| England | 50 | 1,000 | 1,050 |
| Northern Ireland | 25 | 375 | 400 |
| Scotland | 25 | 500 | 525 |
| Wales | 25 | 500 | 525 |
| **Total** | **125** | **2,375** | **2,500** |

The sample was drawn to be nationally representative by applying quotas on age, gender and government office region. The larger sample drawn for England reflects the larger population. The sample size for the Northern Ireland segment was smaller due to the limitations of the numbers available through the existing survey panel and the desire to ensure that it was representative in other dimensions. The total sample size of 2,500 was sufficient to allow investigation of differences in preferences across countries and also across other relevant dimensions such as age, gender, income and intensity of service use.

### Development of the attributes of most interest

As described earlier, we identified a list of possible attributes to include in the DCE choices via focus groups and a prior expert workshop. We used this list of attributes as a framework

against which we mapped a range of possible funding options, such as different kinds of taxation, compulsory or voluntary insurance and out of pocket payment. This provided insight into where the attributes differed between funding alternatives, and helped us to identify possible alternative levels for each of the attributes. Through this process there was a further refinement of the attribute list to ensure that the attributes and their levels that were included in the DCE were capable of representing the differences between the different funding options.

Based on what we heard in the focus groups, the decision was taken to provide within the DCE survey some information about existing levels of funding for NHS and social care and about how this funding was raised. We decided that the best way to do this was to include a small set of questions about existing funding arrangements at an early stage of the questionnaire, and then feedback to respondents both their own answers and the actual state of affairs. This approach would allow us to reveal to respondents where their current assumptions may not be right and, by doing that, was expected to be more effective in communicating the information than simply providing text that might not be read.

A first draft of the choice experiments was developed and discussed with the Expert Reference Group through a teleconference. As a result, some simplifications were made to the task by dropping attributes relating to the sensitivity of the funding model to economic cycles and the administration costs. Table 3 lists the attributes decided on, and the levels to be included for each of those attributes. For example, with respect to the degree of universality/collectivism in the way of funding NHS care or social care, two levels were selected. At one end of the spectrum is an approach where the default that everyone is expected to contribute something, for which the corollary is that everyone has entitlement to at least some care. Alternatively, the funding approach could emphasise individual responsibility: you only receive care if you pay for it, or buy insurance that pays for it, when you need it.

**Table 3: Funding attributes and levels for testing in DCE**

| Attribute | Levels | Description |
|---|---|---|
| Universality/collectivism | 0 | Everyone contributes, everyone gets benefit |
| | 1 | Individual decides whether to pay (either through insurance or one-off payments), individual doesn't benefit if hasn't paid |
| Income equity | 0 | What you pay does not depend on your income |
| | 1 | People pay broadly in proportion to their income |
| | 2 | Those on higher incomes pay at higher rates |
| Inter-generational equity | 0 | What you pay does not depend on your age |
| | 1 | Young people pay less and older people pay more |
| Who controls the fund | 0 | UK national government (not ringfenced) |
| | 1 | UK national government (ringfenced for health) |
| | 2 | Regional/devolved government (not ringfenced) |
| | 3 | Regional/devolved government (ringfenced for health) |
| | 4 | Local authority (not ringfenced) |
| | 5 | Local authority (ringfenced for health) |
| | 6 | NHS body |
| | 7 | Commercial company |
| | 8 | Charitable organisation |

The range of levels relating to the attribute 'who controls the fund' was defined so as to encompass a range of alternatives that the Expert Reference Group felt could be important in informing the policy debate. Thus the levels differentiate according to whether the organisation controlling the funds raised is a public body, a commercial company (such as an insurance company) or a charity. Within the category of public bodies we further differentiated according to the geographical level of government (national, devolved/regional, local) and according to whether the funds for NHS care or social care would be ringfenced so that the body controlling the funds has no discretion to spend them on anything other than health care or social care, respectively. The notion of tax hypothecation recurs frequently in discussions of ways to fund health care.[2] Hypothecation has numerous variants, but in essence means the dedication of the revenue from a specific tax for a particular expenditure purpose. In the DCE we have referred to how the funds raised are spent being 'ringfenced'. The language of ringfencing expenditure is likely to be more familiar to members of the public than is the jargon of 'hypothecation' of taxes and it conveys the same essential point that the person contributing the funds is being assured that those funds will only be spent on health care (or social care, respectively).

The current funding systems for NHS and social care in the UK are complicated but they can be broadly characterised in terms of the attributes and levels in Table 3. For the NHS, the current funding arrangement across the UK is broadly speaking:

- universality/collectivism: level 0 – everyone contributes, everyone gets benefit
- income equity: levels 1 and 2 – the NHS is 99% tax funded (including National Insurance contributions as a tax) and those on higher incomes tend to pay more in taxation – income tax, National Insurance contributions, VAT, duties and so on. Funding additional NHS spending by increased income tax would be level 2, as

income tax is at higher rates for higher earners, that is, it is progressive. Funding via increases in all taxes across the board would be approximately level 1, as some taxes are effectively regressive (tobacco duty, for example), which counteracts the progressivity of income tax

- inter-generational equity: level 0
- who controls the fund: level 0 for the most part – UK national government (not ringfenced), although with limited discretion in Scotland to raise additional income tax and discretion in Northern Ireland, Scotland and Wales over the portion of tax funding they receive that they spend on the NHS (so level 2 in part).

For social care funding the current funding arrangement across the UK is broadly speaking:

- universality/collectivism: levels 0 and 1 – everyone contributes to taxation for publicly funded social care, but a large part of social care depends on individual funding and unpaid provision of care by family/friends
- income equity: level 0 to a large extent – where the individual is left to pay out of their own pocket, they are left to pay the market price for the services they use
- inter-generational equity: level 0 for publicly funded care, but effectively level 1 for privately funded care, as it is predominantly the elderly who require the social care
- who controls the fund: level 0 for the most part – UK national government (not ringfenced), although with limited discretion in Scotland to raise additional income tax and discretion in Northern Ireland, Scotland and Wales over the portion of tax funding they receive that they spend on social care (so level 2 in part), plus some discretion for local authorities to raise additional funds via council tax for social care (so level 5 in part).

Another aspect of the DCE survey that was agreed through the discussion with the Expert Reference Group was that the DCE should focus on preferences for how to raise any **additional** funding going forwards, and that arrangements for existing funding would be taken as a given; that is, we would not examine cases where the entire funding regime may be changed. We did not place a time limit on for how many years' additional funds would be raised in the preferred way; thus, we were asking about the preferred method for raising additional funds into the future indefinitely.

Finally, we agreed with the Expert Reference Group that we would ask all respondents to undertake choice tasks relating to NHS care and social care separately, and that we would randomise the order of these to avoid any systematic biases. Thus, some respondents were asked about NHS care first and then about social care, while an equal number of respondents were asked first about social care and then about NHS care.

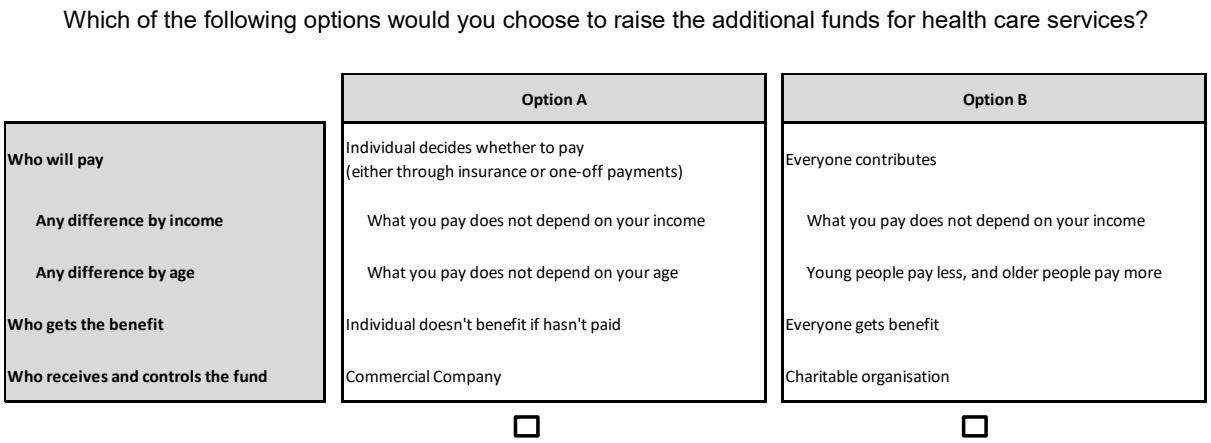
## Development of the experimental designs

Experimental designs were then developed for the DCE using the attributes and their levels shown in Table 3 and ensuring that the combinations of attributes and levels in each option presented to survey respondents were realistic. The designs required contained more

scenarios than could sensibly be presented to a single respondent, so we ensured that each respondent saw a diverse subset of scenarios and was asked to consider a range of markedly different funding options. Combining the results from all respondents enabled the research team to draw conclusions about overall preferences between all possible choices. Each respondent was asked to undertake four choice experiments, two relating to future additional health care funding and two relating to future additional social care funding, and the order of these was randomised.

For each funding area (health care and social care) the first choice experiment was a choice between two generic funding models using combinations of attribute levels specified through the experimental design. An example of this is shown in Figure 1. Each respondent was asked to consider, in turn, four scenarios, each containing a pair of funding options.

**Figure 1: Example choice from first choice experiment**




The second choice experiment presented a situation where the respondent was offered the opportunity to raise the funds through a combination of funding mechanisms. In this second experiment, in each scenario the respondent was presented with four specific funding mechanisms and asked what percentage of the additional funds they would like to be raised that way. The total across the four mechanisms was constrained to sum to 100%. The researchers selected the combinations of attributes such that each combination was equivalent to a particular way of funding care (see Table 4), but we deliberately did not label the mechanisms with those terms (income tax etc). We just left them as unlabelled combinations of attribute levels.

**Table 4: Funding mechanisms tested in second choice experiment**

| Options | Universality/ collectivism | Income equity | Inter-generational equity | Who controls the fund |
|---|---|---|---|---|
| Expenditure tax (VAT) | Everyone contributes, everyone gets benefit | What you pay does not depend on your income | What you pay does not depend on your age | UK national government (not ringfenced) |
| Income tax | Everyone contributes, everyone gets benefit | Those on higher incomes pay at higher rates | What you pay does not depend on your age | UK national government (not ringfenced) |
| Wealth tax | Everyone contributes, everyone gets benefit | Those on higher incomes pay at higher rates | Young people pay less, and older people pay more | UK national government (not ringfenced) |
| Mandatory insurance | Everyone contributes, everyone gets benefit | People pay broadly in proportion to their income | Young people pay less, and older people pay more | NHS body |
| Ringfenced expenditure | Everyone contributes, everyone gets benefit | What you pay does not depend on your income | What you pay does not depend on your age | UK national government (ringfenced for health) |
| Ringfenced income | Everyone contributes, everyone gets benefit | Those on higher incomes pay at higher rates | What you pay does not depend on your age | UK national government (ringfenced for health) |
| Ringfenced wealth | Everyone contributes, everyone gets benefit | Those on higher incomes pay at higher rates | Young people pay less, and older people pay more | UK national government (ringfenced for health) |
| Out of pocket (private insurance) | Individual decides whether to pay (either through insurance or one-off payments), individual doesn't benefit if hasn't paid | What you pay does not depend on your income | What you pay does not depend on your age | UK national government (ringfenced for health) |

In each scenario we ensured that the respondent was presented with one of the funding mechanisms in both its general taxation and ringfenced taxation forms, out of pocket private insurance, and one other mechanism chosen at random. The respondent was then asked to consider the percentage of any future funding shortfall they would choose to make up through each mechanism (with the option allowed of assigning 100% to one mechanism). An example of this is shown in Figure 2.

### Figure 2: Example choice from the second DCE

What proportion of future health care funding should be raised by each option?

| | Option A | Option B | Option C | Option D |
|---|---|---|---|---|
| **Who will pay** | Everyone contributes | Everyone contributes | Everyone contributes | Individual decides whether to pay (either through insurance or one-off payments) |
| **Any difference by income** | What you pay does not depend on your income | What you pay does not depend on your income | Those on higher incomes pay at higher rates | What you pay does not depend on your income |
| **Any difference by age** | What you pay does not depend on your age | What you pay does not depend on your age | What you pay does not depend on your age | What you pay does not depend on your age |
| **Who gets the benefit** | Everyone gets benefit | Everyone gets benefit | Everyone gets benefit | Individual doesn't benefit if hasn't paid |
| **Who receives and controls the fund** | UK National Government (not ringfenced) | UK National Government (ringfenced for health) | UK National Government (not ringfenced) | UK National Government (ringfenced for health) |
| **Total = 100%** | _____ % | _____ % | _____ % | _____ % |

Further technical details regarding the approach to the experimental design, along with the choice combinations used, are provided in Appendix D.

## Questionnaire structure

The questionnaire around the choice experiments was structured in a series of sections, to both set up the respondent for answering the choice experiments and collect wider data on the respondents' characteristics, to provide insight into how preferences may differ between groups within the population. The questionnaire had the following sections.

- Introduction to the study.
- Screening questions for quotas (country, age, gender).
- Information on current health and experience of health and social care (general rating of health; whether registered with a GP; number of visits in the past year to GP or hospital; whether personally acted as an informal carer; whether had experience of social care services, and view of how appropriate that care was).
- Existing knowledge and awareness of NHS and social care funding levels and sources (current NHS expenditure, proportion coming from taxes or user charges; public expenditure on social care, proportion coming from taxes or user charges or unpaid care).
- Recap on respondent's answers and information on actual funding situation.
- Introduction to choice experiments.
- Choice experiments.
- Diagnostic questions on DCE (ability to make choices, if not – why not, ability to allocate shares, if not – why not).
- Respondent characteristics (employment status, whether they or their partner works in health or social care, education level, tenure, marital status, household income).
- Other comments or feedback.

## Cognitive testing and piloting

This survey was tested through a series of 10 cognitive interviews with a cross-section of the general population. Within these interviews we asked members of the public to complete the questionnaire and choice experiments while we observed their behaviour, and then followed this with some questioning around their experiences in answering the questions. This process provided an understanding of how the individuals interpreted the questions and constructed their answers, and helped identify both ambiguities in the question wording and circumstances that made the questions difficult to answer. From the cognitive interviews we identified that the survey was working as intended, but there were a number of places where the wording and presentation could be improved to remove potential ambiguity and to avoid overwhelming respondents with too much information to digest at once. In addition, some refinements were made to the initial wording of the attribute levels, leading to the final wording presented in Table 2 above. The final form of the questionnaire, following these amendments, is in Appendix C.

The survey was then piloted, between 16 and 19 February 2018, with 129 respondents from the online panel that would be used for the main survey. Analysis of the pilot data confirmed that the survey and the choice experiments were working as intended, but from the timestamps within the survey we identified that there were some respondents who were completing the discrete choice experiments quicker than would be possible if the introductions and scenarios were read in full. Following discussion with the panel provider it was agreed that for the main survey a threshold should be implemented that would screen out any respondents that completed the first choice experiment in less than 50 seconds (which was judged by the panel provider to be a credible time to read and respond to this task).

## Our survey sample

The full survey was undertaken between 23 February and 5 March 2018. A total of 2,675 respondents completed the online survey. As no changes had been made to the questionnaire following the pilot, a further 81 pilot responses were pooled for the main data set by incorporating those cases which had exceeded the 50 second threshold on their first choice experiment. This led to a total sample of 2,756 cases for analysis.

Quotas had been set in order to obtain coverage across the four countries of the UK and, as can be seen from Table 5, these quotas were exceeded for all countries.

**Table 5: Quotas and responses by country**

| Country of the UK | Target | Achieved |
|---|---|---|
| England | 1,000 | 1,199 |
| Northern Ireland | 375 | 388 |
| Scotland | 500 | 633 |
| Wales | 500 | 536 |
| Total | 2,375 | 2,756 |

We aimed to collect data that were broadly representative of the UK population by age and gender. As can be seen from Figure 3, our sample under-represents the youngest and oldest in society. Both age groups are covered, but not in line with the proportions expected.

Figure 4 shows that we have a slightly greater proportion of female respondents than we would expect, particularly in the samples collected from Northern Ireland and Wales.

These differences between the proportions in our sample and the known UK population are dealt with when we come to forecast public acceptability from our choice models by weighting our sample back to the known proportions by country, age and gender.

**Figure 3: Age distribution by country**

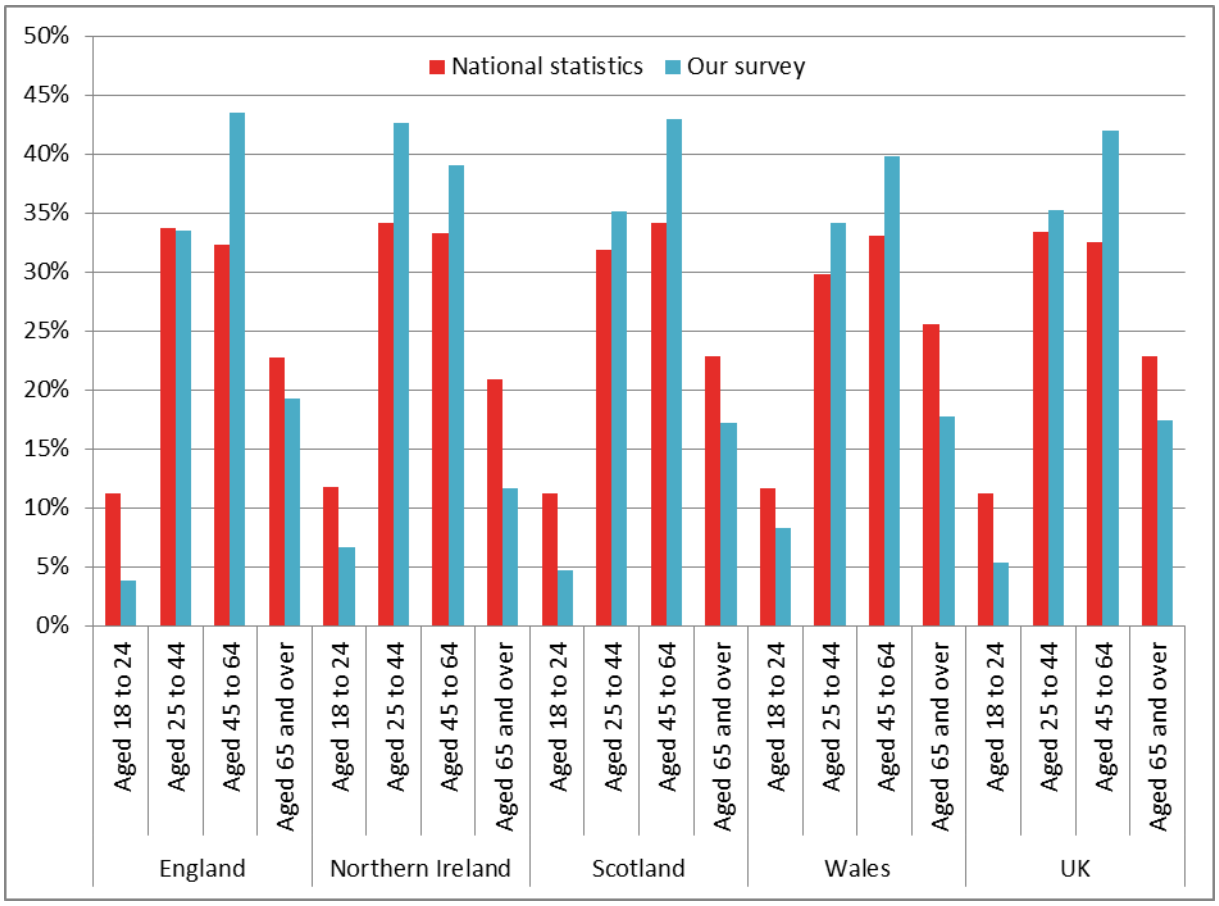
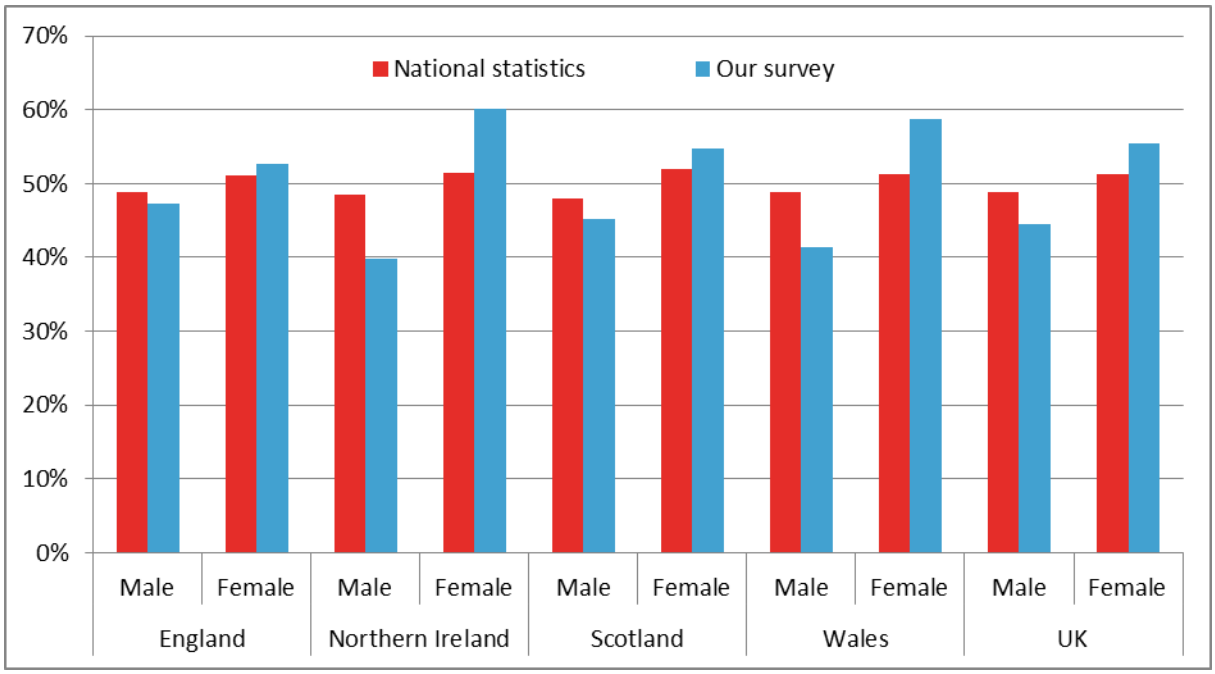


**Figure 4: Gender distribution by country**



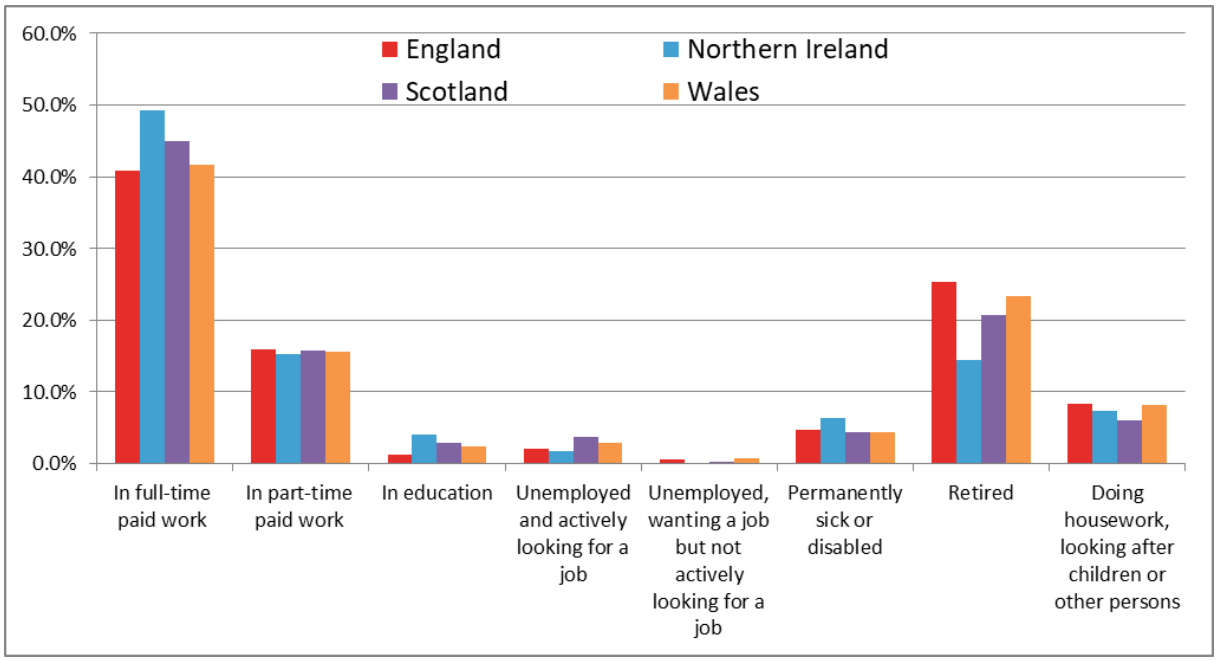

In terms of other sample characteristics, we see minor differences in socioeconomic features between the countries (Figures 5a-5d). These include: slightly higher full-time employment levels among our respondents in Northern Ireland than in the other three countries; slightly lower education levels among our respondents in England; higher home ownership in England; and a lower proportion in the lowest household income band in Northern Ireland and a higher proportion in the highest household income band in England.

Comparing against statistics for the UK population, the employment levels in our sample are comparable to national statistics.[17,18] These show employment at 59% of the 16 and over population for England, 58%% for Scotland, 55% for Wales and 55% for Northern Ireland. In comparison, our sample (of adults age 18+)has employment levels of 57% for England, 61% for Scotland, 57% for Wales and 65% for Northern Ireland.

In terms of tenure, we see from government data[19] that our sample has a slightly higher proportion owning their properties outright (40% compared with 34% across the UK), similar proportions with a mortgage (32% compared to 29% across the UK) and a lower proportion reporting as renting or other (28% compared with 37% across the UK).

Comparable statistics are not available for the total UK adult population with regard to education level or income band distribution. However, it is reassuring that the sample contains a good distribution across different groups, and that these are broadly comparable across countries.

## Figure 5a: Employment status by country




## Figure 5b: Education by country

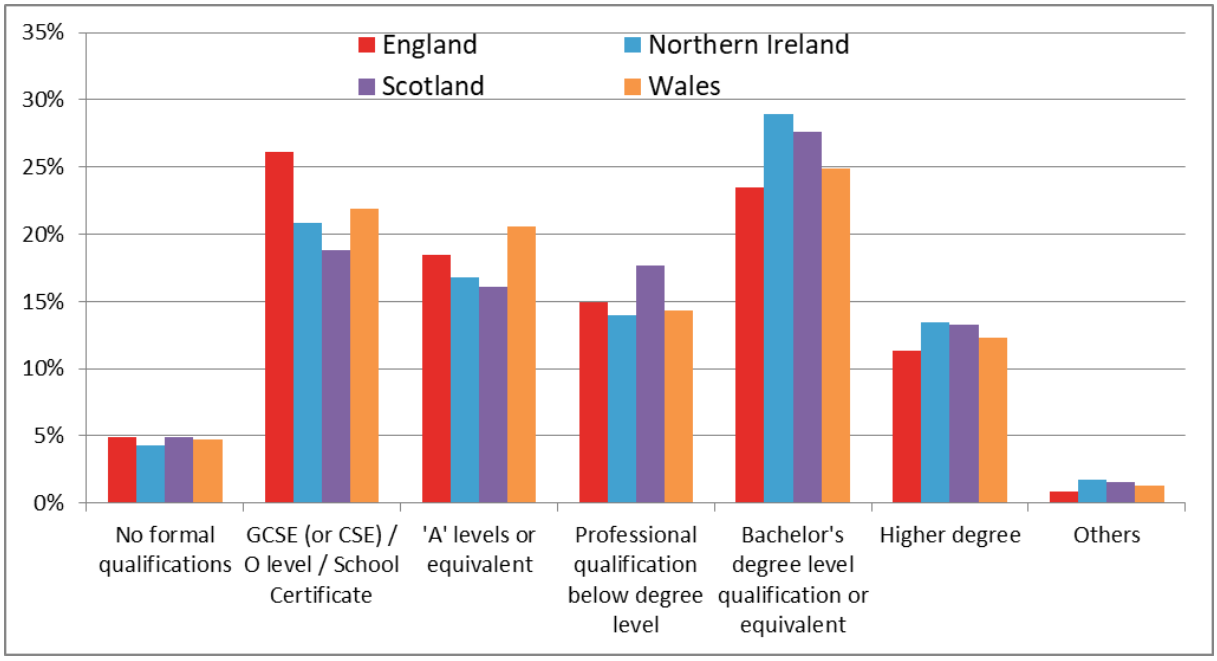


**Figure 5c: Housing tenure by country**

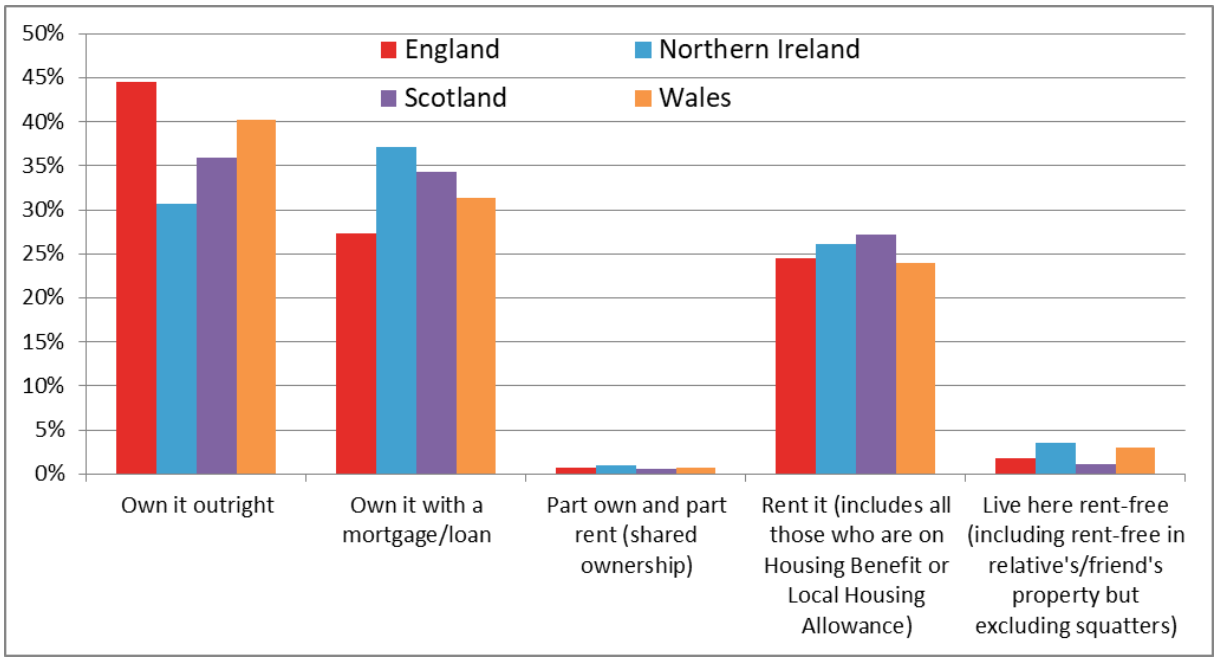
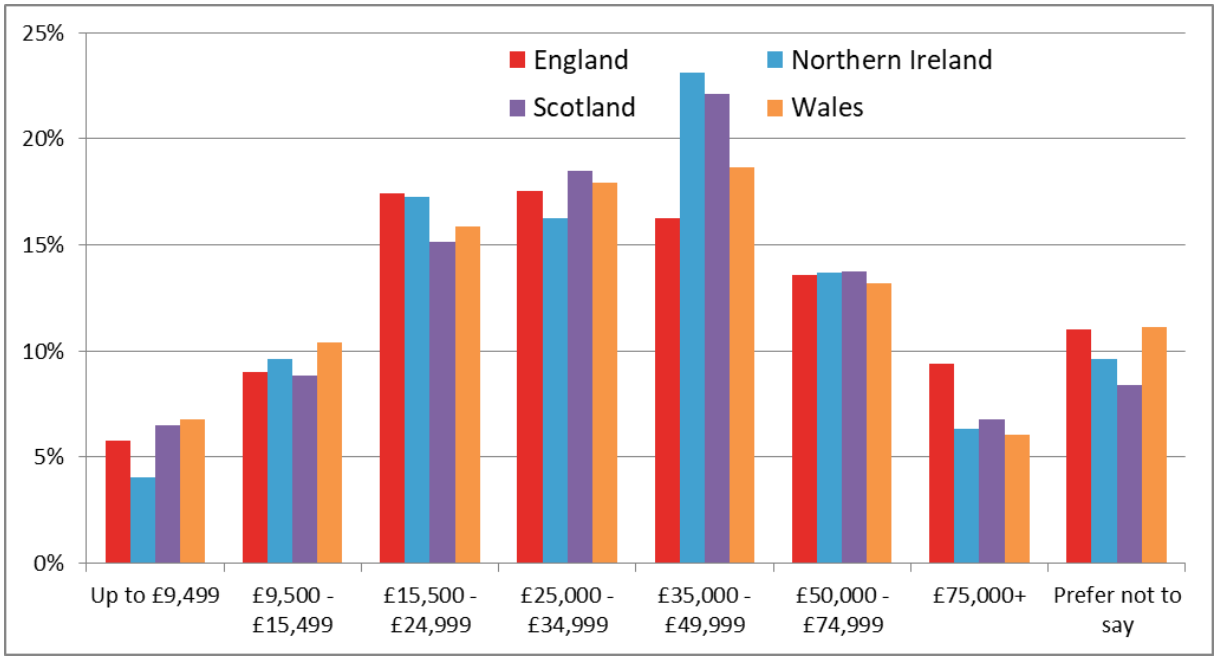



**Figure 5d: Household income distribution by country**




In analysing the DCE data we examined whether preferences differed by any of the age, gender and socioeconomic characteristics. Once we had taken account of these we then tested whether there appeared to be any country-specific effects over and above those explained by population differences.

Looking across the sample as a whole, approximately 60% of the respondents (who were all adults) reported that their health was ‘excellent’ or ‘good’ (as opposed to ‘fair’, ‘poor’, ‘very poor’ or ‘don’t know’). The 2011 Census[20] found that 81% of the UK population (including

children) were in ‘good’ or ‘very good’ general health in 2011 (as opposed to ‘fair’, ‘bad’ or ‘very bad’). Thus, our respondents may on average be less healthy than the overall population. However, in our subsequent analysis of the DCE results we did not find that self-reported health state affected the stated preferences.

In terms of use of services, in the past 12 months:

- 84% of respondents reported visiting a GP or hospital one or more times for themselves or family members
- 51% of respondents reported having been referred to a specialist one or more times for themselves or family members
- 27% of respondents reported attending A&E one or more times for themselves or family members.

Comparable statistics are not available for the total UK adult population.

40% of the respondents to our survey reported providing ‘more than one hour of help or support to anyone in the last month because they have long-term physical or mental ill-health or disability, or problems relating to old age’ but excluding anything done as part of their paid employment (see Appendix C). Furthermore, 59% of respondents reported that they or someone they were close to needed regular help and long-term care. The UK Census in 2011 asked a more restrictive question[4] and found that approximately 5.8 million people provided unpaid care in England and Wales in 2011, which would be equivalent to 13% of the adult (18+) population alone.[21] However, this is based on a question with a threshold of 1 hour per week, whereas the question we used in our survey counted anyone providing 1 hour or more per month. There is a possibility nevertheless that our respondents are on average more familiar with providing informal care than is the population of the UK in general.

## Modelling of the choice data

The data from the DCE were used to develop discrete choice models to understand the influence that differences in each of the funding attributes had on the propensity to choose future funding mechanisms. The details of the modelling are described in Appendix D.

The specific findings from our model, and its application to examine public acceptability, are described in the next chapter.

[4] ‘Do you look after, or give any help or support to family members, friends, neighbours or others because of either:
• long-term physical or mental ill-health / disability?
• problems related to old age?
Do not count anything you do as part of your paid employment.’

# 3. Findings

This section presents:

- how the expert workshop guided the content of the subsequent focus group discussions with members of the public
- the themes that emerged from the five focus groups, conducted across all countries of the UK and used to help design the DCE survey
- the findings of the DCE survey.

We present in turn in this section the findings of the three elements of the research described in Section 2. Thus, we first report the findings from the expert workshop, which helped us to scope the discussions in the focus groups; then the information we gained from the focus groups, which enabled us to design the DCE accordingly; and finally, the results of the DCE, and what they tell us about the preferences of the general public in the four countries of the UK for how to raise the additional funds needed for NHS and social care over the coming years.

## 3.1 Outcomes of the expert workshop

The following key attributes, which may be present to different degrees in alternative options for funding NHS care and social care, were agreed by the workshop participants to be priorities for discussing in the FGDs and potentially taking on to the DCE.

- The public's attitudes towards **collectivism** were considered to be very important to investigate. In other words, to what extent it is desirable that everyone contributes to funding care that is then potentially available to all, versus individuals being personally responsible for funding their own, and their family's, care.
- **Fairness/equity** of different funding approaches, particularly related to individuals' income and wealth, would be a major theme: that is, the extent to which ability to pay, rather than need for care, determines contributions.
- Because of the likelihood of different levels of trust in different types of organisation, **preferences between the types of organisation** that could be responsible for receiving the funds and controlling what they are spent on (national, regional, local government; NHS or other public bodies; charities; commercial organisations) should be tested.
- Attitudes towards **hypothecation** of taxes, where tax funding is considered.
- **Inter-generational equity** was also an issue considered to be of particular interest to explore: how far are younger adults happy to contribute to funding the care of older people?

Further important guidance from the expert workshop was that the focus groups needed to be clear when the discussion was about the total funding of **all** social care/NHS care, and when it was about sourcing the **extra** funds that will be needed in future years to meet growing demands for social care and NHS care. As will become clear in the discussion of the focus group findings below, we found that a discussion of how to raise the money for the additional funding needed in future was more practical than a discussion of how to raise all of the funding.

## 3.2 What we learned from the five focus group discussions

The discussions in the five locations were wide ranging, but in our analysis we have been able to group what we learned from the FGD participants into 11 themes, which are described further in the following pages but which in summary were:

- a lack of knowledge about how care, especially social care, is funded now
- disbelief about the scale of likely future public funding shortfalls on current trajectories
- alternatives to raising more funds
- the extent of coverage offered by publicly funded care
- self-insurance versus collectivism
- payment related to income and/or age rather than being a fixed amount
- the role of wealth taxes
- paying out of pocket and for voluntary insurance
- (dis-)trust of government and hypothecation
- local versus national taxes
- (no) responsibility for children to fund care of parents.

These points do not contain every comment or nuance of what was said at the FGDs. Our concern has been to capture the **range** of views and insights revealed by the 46 participants in the five groups, and wherever some **consensus** was apparent we have noted that. However, it is important that the themes described here are not interpreted as necessarily representing a majority view: FGD participants held differing views and were not asked to reach a consensus or to 'vote' on any aspects of the discussion. We have included (anonymised) quotes from focus group participants where they illuminate or encapsulate important themes.

### Lack of knowledge about how care, especially social care, is funded now

In all of the FGDs participants were asked to write down a definition of health and social care respectively[5] on a post-it note before starting the discussion. Health care was understood to

[5] In St Albans participants were asked at the start of the FGD to define only social care, and then later, following the initial discussion of social care, the FGD participants were asked to define health care. But in all the subsequent four FGDs participants provided their definitions of health and social care up front, at the same time.

be the range of services that are provided by the NHS, but the meaning of social care was subject to greater uncertainty:

> *'It's more to do with treatment I think, healthcare. You know treating a patient, whereas social care is more to do with helping people you know like elderly people that need help or new mums, district nursing type of thing… See social care as more based around your own home, whereas healthcare is more based around the hospital or surgery.' (Female, working age participant in Livingston)*
>
> *'Social care is more of a long-term thing whereas health care is a more short-term fix.' (Female, working age participant in St Albans)*

There were notable overlaps between the definitions provided, with certain components of care, such as mental health and community care, appearing in both 'health' and 'social' care definitions. The lack of a clear distinction between health and social care played out in the FGDs. Despite facilitators' efforts to keep the conversation focused on one aspect of care at a time, social or health, participants frequently switched between the two, often within the same sentence. Commonly, individuals would start talking about social care, but go on to describe a medical problem or an interaction with an NHS service.

With respect to how care is funded in the UK now, there was general understanding that NHS care is predominantly paid for out of public funds. But some participants thought that NHS care (apart from prescription charges) was funded entirely from National Insurance contributions, without recourse to general tax funds:

> *'I thought this was the whole point of National Insurance.' (Male, retired participant in St Albans)*

There was much less understanding of how social care is paid for currently, the extent to which people buy it for themselves (or their relatives) and the extent of informal (unpaid) social care supplied by families and friends. Even among those who had experience of arranging care for others (usually their parents) there was a lack of clarity about the funding system. There was, however, awareness that people had to pay for places in residential care homes, for example, and that if you had more than a certain amount of money you had to pay out of your own pocket. People did not necessarily know what the threshold for that was. Individuals who had no experience of social care tended to assume it was all state funded. In both Bridgend and St Albans, where participants informed the rest of the group that there was a threshold for being eligible for social care, this caused consternation among other participants, who had assumed that social care would be provided by the state.

### Disbelief about the scale of likely future public funding shortfalls on current trajectories

Although some participants agreed that there was a need for increased funding, many resisted the idea that there would necessarily be a large shortfall in funds for NHS and social care unless more money is found. The latter felt that they paid enough tax and National

Insurance contributions already and that they could not pay more in view of austerity and low wage increases in recent years. While some FGD participants thought that NHS care and social care represented ‘a bottomless pit’, meaning that ‘there’s never enough money’, other participants thought that steps could be taken to obviate the need for increased funding (see the next section).

Nevertheless, there was a minority understanding that the NHS and social care systems had been designed in a different era for a different set of circumstances. Only through the discussion did participants come to explicitly realise that there are now more health care treatments available than before, that newer treatments are more expensive, and that population growth is the result of people living longer and not (only) the result of immigration. There was then a broad understanding that because people are living longer they need social care not needed by earlier generations (who died younger). So there seemed to be a degree of general acceptance that there need to be changes in order to find the scale of funding required.

Based on experience at the first FGD (St Albans), we prepared information on the scale not only of current NHS and social care expenditure, and of the respective public and private sources of funding, but also of the predicted shortfall in future funding for NHS and social care for use, as necessary, in the remaining four FGDs. In the four groups where the sizes of current funding and of the estimated shortfall were revealed to participants by the facilitators, it was clear that the numbers were too large to be grasped clearly. This was illustrated by some participants repeating back the number in millions of pounds rather than in billions. To reduce this difficulty in the DCE, the decision was taken to focus on how to find the **extra** funding required by NHS and social care over the next few years, rather than ask about the much larger, and hence even harder to conceive, **total** funding figures.

Initially, in the discussions of social care funding there was a refusal to accept the existence of a funding shortfall and generally participants had an expectation that it should be state funded. However, some participants appreciated the scale of the issue and they tended to persuade others that social care would not be fully state funded.

### Alternatives to raising more funds

A strong theme emerging from all of the FGDs was an understandable desire not to have to raise additional funds. Three main groups of alternatives were raised in the hope of obviating the need for increased funding:

- cost savings
- extracting payment from the ‘undeserving’
- switching funds from other areas of public expenditure.

The following paragraphs expand on each of these in turn.

There was a widely expressed view that if there was an NHS funding shortfall then it was presumably at least partly due to waste and inefficiency in the health service. Some FGD participants identified various categories of cost that they considered should be eliminated, such as: reducing bureaucracy and management; not paying agency nurses more than other nurses; not prescribing medicines that can be (more) cheaply purchased over the counter; and accepting the return for reuse of crutches and other medical equipment issued to patients. Another inefficiency in the view of some participants was having 'too many' office staff and paying them 'too much', as distinct from frontline clinical and other care staff.

FGD participants saw money as being misused where it was taken up in caring for those who were seen as not having contributed to funding that care or who had abused the (health) care system by their behaviour, such as failing to turn up for appointments:

> *'When people miss appointments they should be fined, because you're not going to do it again.' (Female, working age participant in Bridgend)*

or needing medical care as a result of excessive alcohol intake:

> *'With the NHS I think some people should have to pay for it. For example, people who will go out on a Friday or Saturday night and get so ill they have to be picked up in an ambulance, they should be paying for that.' (Female, working age participant in St Albans)*

There was recognition that more public funds could be spent on NHS and social care if less funds were spent on other areas such as overseas development aid, defence or education. The facilitator actively moved the discussion on at each FGD so that it did not rest at that point, but dealt with how to raise funds if such reallocation from other public budgets was not possible. In Northern Ireland it was suggested that the shortfall is the result of budget allocation decisions and that it could be increased or decreased via political decisions on how much to allocate to the health and social care budgets. This awareness was also evident in relation to discussion about ringfencing tax funds specifically for spending on health and social care (see the sub-section below on "(Dis-)trust of government and ringfencing").

### Coverage offered by publicly funded care

A common view was that everyone resident in the UK should be covered by the NHS with all health care (medical care) free at the point of delivery and that no one should be refused urgent care.

For social care, the general view was that many people do not consider that they will need it and so don't think about how it is paid for until they or someone close to them reaches that point. There was agreement in the FGDs that there should be a minimum level of publicly funded care to which everyone is entitled, but which individuals can supplement if they can afford to and choose to.

## Self-insurance versus collectivism

For NHS care it was readily agreed that everyone should contribute to paying for the NHS, primarily because it is clear that everyone will need some health care at some point in their lives. Furthermore, on grounds of fairness, there was general agreement that people should not be left without essential health care just because they were unable to afford it. This was despite some focus group participants expressing annoyance at the thought that collective funding of NHS care would mean having to pay for the care of people who they considered to be less deserving of that (tax avoiders/evaders and 'health tourists' were referred to). Thus, though usually after some discussion rather than straight away, the FGD participants agreed that collective funding is required for health care because an individual's needs might, through no fault of their own, exceed in cost any reasonable level of self-insurance that they might be able to afford (such as via a medical savings account):

> *'When you talk about a personal pot or a shared pot it makes me think of America where some people have something awful and can't afford the health care. I would hate to think "Oh yes, I have all this money for myself, I'm happy and healthy and my neighbour gets something horrific and can't afford that health care"' (Female, working age participant in Middlesbrough)*

A commonly expressed view was that people cannot be trusted to buy voluntarily sufficient insurance for their health care, which means that mandatory payment (e.g. via taxation or mandatory health insurance) is essential. There was unanimous agreement in all of the FGDs that health care should continue to be funded through taxation.

When discussing social care, FGD participants found it more challenging to determine whether people should be responsible for setting aside funds for their own care or whether there should be collective funding of a shared pot. While it seemed clear that everyone would at some point require health care, the same was not felt to be true of social care:

> *'The thing with social care is you think it's never going to happen. The thing with health care is that you use it from day one: you go to the GP and whatever.' (Female, working age participant in Middlesbrough)*

Also, while it was realised that some people's needs for health care might imply very high costs, there was less understanding of how costly social care might be for some individuals. Some participants were initially, more than for health care, focused on only paying for social care for themselves. Ideas emerged from several participants across the groups based on the concept of paying into a personal social care account, just like a personal pension pot. This reflects the focus on entitlement based on contributions, which they perceive as the rationale for UK National Insurance contributions in addition to income tax (and other taxes).

However, in all the FGDs at least one person challenged this concept by asking what would happen to those who could not build a pot or those whose pot was not large enough to meet their social care needs. The conversation in Bridgend was reframed by one older individual

who compared it to house insurance rather than a pension, which resulted in a shift in that FGD in support of a shared pot:

> *'What I can't understand is everyone is willing to pay into these [pension-like] schemes and they seem to want benefit off it. Except you get house insurance and hopefully nothing will happen to your house and all that money you've paid in you think nothing of it. It's gone. So it's worth putting money in for your health and social care… You don't want anything back because hopefully nothing will happen, at least you're covered. You don't miss it. It's an insurance policy.' (Male, retired participant in Bridgend)*

The conclusion was then that everyone should pay, so as not to leave some people destitute. From this came the idea that there should be a basic level of publicly funded social care to which everyone is entitled while those with more money could buy more care.

### Payment related to income and/or age

For both publicly funded health and social care, the current system, whereby payment is related to income rather than being a fixed amount regardless of income, was felt by the FGDs to be right. In all FGDs the general view was that people with higher incomes should contribute more:

> *'Has to be a percentage of what you earn, because some people earn more than others… It's fairer the more you earn the more you contribute.' (Female, working age participant in St Albans)*

Only a few participants demonstrated awareness that income tax is progressive in nature: with those on higher incomes paying a greater percentage of their income in tax. Only in one group did the issue of the **progressive** nature of income tax arise explicitly and spontaneously and it was said to be fair. In all groups the desire that 'the rich' should pay more could be interpreted as a desire for progressivity, but comments were not couched in that language.

Participants generally struggled to identify taxes other than income tax, although other taxes were occasionally mentioned in the FGDs as possible sources of additional funds for NHS and social care: VAT particularly, but also corporation tax, duties on alcohol and so on, even the National Lottery. However, attention focused on income tax as the main source of additional tax funds.

The specific idea that people should pay more tax from the age of, say, 40 (as in Japan) to cover their social care in older age was tested by the facilitators in the discussions. This was rejected by some as unfair and because of a feeling that everyone should pay, but it was felt to be acceptable by others. Those for whom it was acceptable felt that it was fair: taxpayers would know that it is coming and could plan for it. Additionally, other major expenses such as student loans and house purchase would be finished or at least much reduced by then.

## Wealth taxes?

In no FGD was wealth brought up as a way of raising additional funds to pay for care. When put forward as a suggestion by the facilitator, there was limited support for taxing individuals' assets. In general, a tax on wealth was considered 'unfair' and many participants retorted that they already paid tax on interest gained on savings, capital gains tax and inheritance tax.

There is a strong feeling that 'people who have worked hard all their lives' should, if they wish, be able to pass their house and other wealth on to their children:

> *'What if someone saved all their life, and struggled to pay for it, and you buy a house, that shouldn't be taken away from you.' (Female, working age participant in Middlesbrough)*

Some participants felt that more could be done to encourage cheaper communal living for older people, even at the expense of selling their house. Options for equity release were not raised spontaneously by focus group participants, and the facilitator did not introduce the topic as there would not have been time to go into the details of such schemes without skimping on other, higher-level issues.

While there was strong support in all five FGDs for 'the rich' to pay more for care than the rest of the population, and for offshore and other tax loopholes to be closed, there was a view that wealthy people would nevertheless probably avoid a wealth tax by hiding their assets or moving them offshore:

> *'Biggest loophole is the very, very rich who have their money overseas.' (Female, working age participant in Livingston)*

## Paying out of pocket and for voluntary insurance

With respect to NHS care, there was unanimous agreement on raising most of the extra funds needed in future from taxation or other mandatory sources, but paying for prescriptions was supported in all four countries, even where prescriptions are currently free of charge for everybody. As there was little interest in significantly increasing out of pocket payments for NHS care, there was little discussion of insurance to cover the risk of having to make such payments. However, the majority of FGD participants agreed that those individuals who want to take out additional voluntary health insurance should be allowed to do so, as in the UK currently. A minority disagreed and considered it wrong that anyone should be able to pay privately to receive care.

All FGDs struggled to determine how social care should be funded. Initially, a number of participants stated that social care should be paid for via taxation. But once current arrangements for funding social care were understood, the FGDs saw the necessity of substantial continued payments out of pocket by those who could afford them, although with a basic level of publicly funded social care being available to all. Most participants agreed

that the threshold for having to pay for your own social care was too low and should be raised:

> *'There should be a limit on [publicly funded social care] and you should get a basic amount of social care which everybody is entitled to. Prince or pauper, you're entitled to this and then anything above or beyond we'll mean test it: well you've got that amount in the bank and you want that service you'll have to contribute. Otherwise that pot is going to be empty.' (Female, working age participant in Bridgend)*

Various forms of voluntary insurance for social care were discussed and while some participants were in favour of such schemes, others felt that they could not trust themselves to take out sufficient (or any) insurance given what else they could spend their money on if it were left to their own discretion. Yet others felt that they did not have sufficient income to make this sort of commitment.

## (Dis-)trust of government and ringfencing

FGD participants were asked whether they thought it would be better if NHS and/or social care had a ringfenced budget, although as noted, some people had been under the impression that National Insurance was still exactly that. Some people thought ringfencing would make it more transparent where the tax funds were being spent and would allow the public to gain a better understanding of how NHS and social care are funded:

> *'The taxes need to be safeguarded… They ought to keep a separate pot for health and social care.' (Male, retired participant in St Albans)*

There was a strong distrust of government evident in the FGDs, fuelled to some extent by changes to the state pension system, where some of those around pension age felt that the 'goalposts had been moved':

> *'This is under the assumption the Government wouldn't change the rules half-way through. Who should hold the money? Anyone but the Government. My wife has just lost out on five years of pension because of the changing of the rules.' (Male, retired participant in St Albans)*

'Anyone but the Government' sums up a common theme among the views of the FGD participants on who should control the NHS or social care budget, although in no group was a favoured alternative identified. In response to the idea that a ringfenced fund could be held by a non-government body, it was clear that this type of organisation (like a statutory health insurer or long-term care insurer in Germany) was not understood by the participants. However, there was a clear sentiment that whoever controls the budget, that arrangement should not be allowed to affect the quality or scope of what care is provided or who is eligible for it, which, it was felt, should be decided by need and fairness.

Some FGD participants felt that supposedly ringfenced tax funds would be raided for other budgets whatever guarantees had been given by the Government:

> *'Nope, Government should not have that pot because they'll take it for something else.' (Male, working age participant in Livingston)*

While few knew that National Insurance was not the (only or main) source of NHS and social care funds, more were aware that car tax was no longer ringfenced to pay for maintenance and improvement of the road network. The differences between those attracted by explicitly ringfencing funds when raising them and those who did not believe it would work were not resolved.

## Local versus national taxes

A national system for raising public funding for NHS and social care was much preferred to local taxation. Indeed, a preference was voiced that this be at the UK level rather than at the level of the individual countries within the UK, although two participants, one in Belfast and one in Bridgend, advocated raising funds at the level of the devolved nations:

> *'I think Wales should sort out Wales, England should sort out England. The people who are going to benefit from that money should be the Welsh.' (Male, working age participant in Bridgend)*

Objections to local-level taxes included:

- The problem that, in the absence of a formula for adjusting funding to need on a geographical basis, rich areas would be able to fund more care, while poorer areas probably needed more care than richer areas, but would have less money with which to fund it:

  > *'Half the younger people in Northern Ireland leave because there's no jobs for them. So that's one of the reasons why we couldn't go it alone.' (Female, retired participant in Belfast)*

  > *'Would have to be national, couldn't be local: there are parts of the country where there are much higher numbers of older people.' (Female, working age participant in St Albans)*

- Much of the tax take is raised from corporations based in London, which would be unavailable to other areas:

  > *'You'd never raise enough money because of the billions that come in corporation tax in London. If only London gets that money we're all going down the toilet.' (Male, working age participant in Bridgend)*

- Concern that people's entitlement to care would be limited to providers in their home area, and about how adjustments would be made for people moving between areas.

Nevertheless, some thought that local-level administration would provide greater transparency, which was needed to manage costs and keep costs in check.

### (No) responsibility for care of parents

The idea of people having a legal obligation to pay for their parents' care (as in France) was tested in all the FGDs and there was almost universal condemnation of it, despite recognition that many people do pay for their parents' social care and/or provide care themselves. Reasons included participants saying they could not afford it, or that they were focused on 'their own family', by which they meant their children.

The specific idea that (as with long-term care insurance in Germany) individuals with no children might be required to pay more into the pot for their future social care was rejected by most FGD participants on a number of grounds, although a small number of participants considered it a reasonable idea. The objections raised were that it would encourage people to have children and possibly at a young age, which was not seen as universally good; that it would penalise those who were unable to have children; that children might go and live abroad and not be able to provide care to their parents; and that parents might fall out with their children.

### Caveats to the analysis of the FGDs

Focus group discussions take place, by design, with relatively small numbers of participants. It is not possible to simply extrapolate pro rata to a UK population of 66 million the points made by 46 participants during 2-hour discussions. Nevertheless, these in-depth discussions are informative for what they reveal about the range of views and the knowledge, perceptions and reasons that underpin them.

## 3.3 Findings from the DCE survey

The analysis of the responses to the choice experiments has explored respondents' preferences regarding a range of different aspects of possible future funding mechanisms, and how these preferences differ between groups in the population. From our analysis we have focused on eight key areas, which are reported in the following pages:

- a lack of knowledge of existing funding levels and how this funding is raised
- respondents were able to answer the questions posed in the choice experiments
- respondents want the same principles to apply in raising future funds for NHS care and for social care
- few differences exist between England, Northern Ireland, Scotland and Wales once we control for socioeconomic differences between the countries
- a strong preference for collectivism over individual discretion

- a preference for progressive funding models (paying a greater percentage of your income the higher your income)
- a preference not to differentiate contributions by age
- a preference for public control and ringfencing of funding.

Technical details about the design and analysis of the DCE findings are in Appendix D.

## A lack of knowledge of existing funding levels and how this funding is raised

Within the survey we asked respondents multiple choice questions about existing levels of annual expenditure by the NHS and social care systems in the UK and how the funding for them is raised. As can be seen from Figure 6, there is a broad lack of knowledge about the existing situation, and this lack is consistent across all four countries. The proportions of respondents giving any particular answer to questions on the levels of expenditure on NHS and social care, and on the sources of social care funding, is around 25%. For multiple response questions with four answers this is the level that would be expected to fall out if the sample were randomly choosing between the answers offered. There is rather better knowledge of NHS funding sources, with almost half of the sample correctly identifying that approximately 99% comes from central taxation and 1% from patient payments. However, this suggests that half of the sample do not realise how small the proportion of patient payments currently made for prescription charges and other items is as part of the overall NHS budget.

From Figure 7 we can further observe that only 1% of respondents were able to answer all four questions correctly, and that only a further 8% correctly identified the answers to three of the four questions.

**Figure 6: Proportion of sample correctly answering questions regarding current funding**

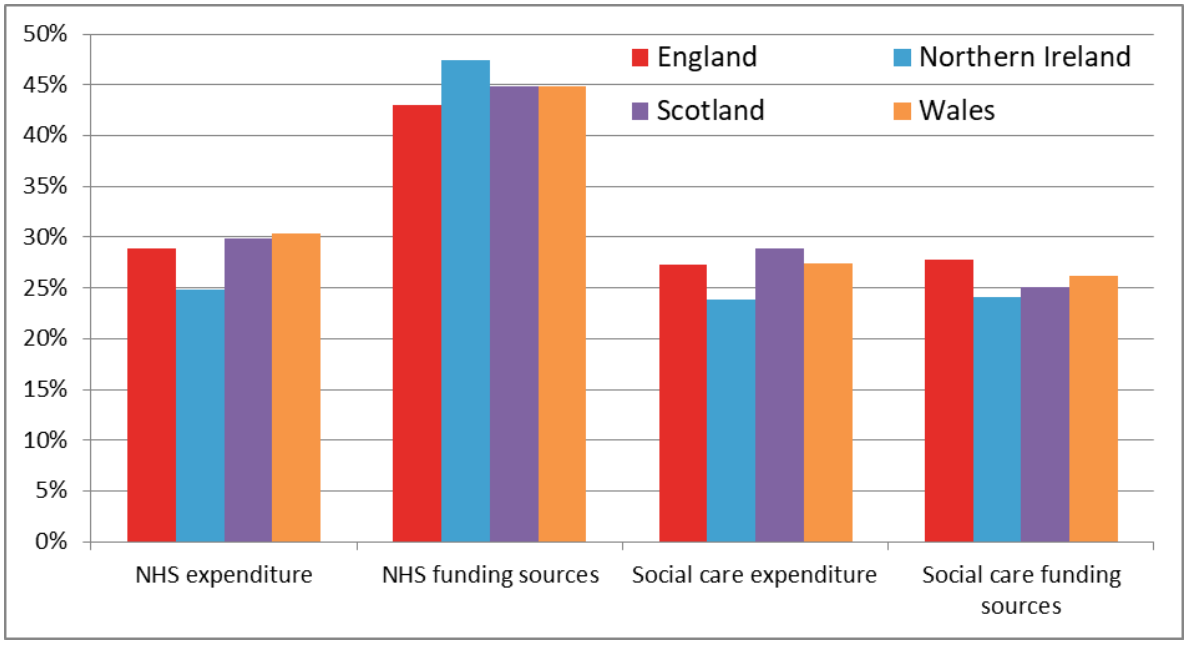
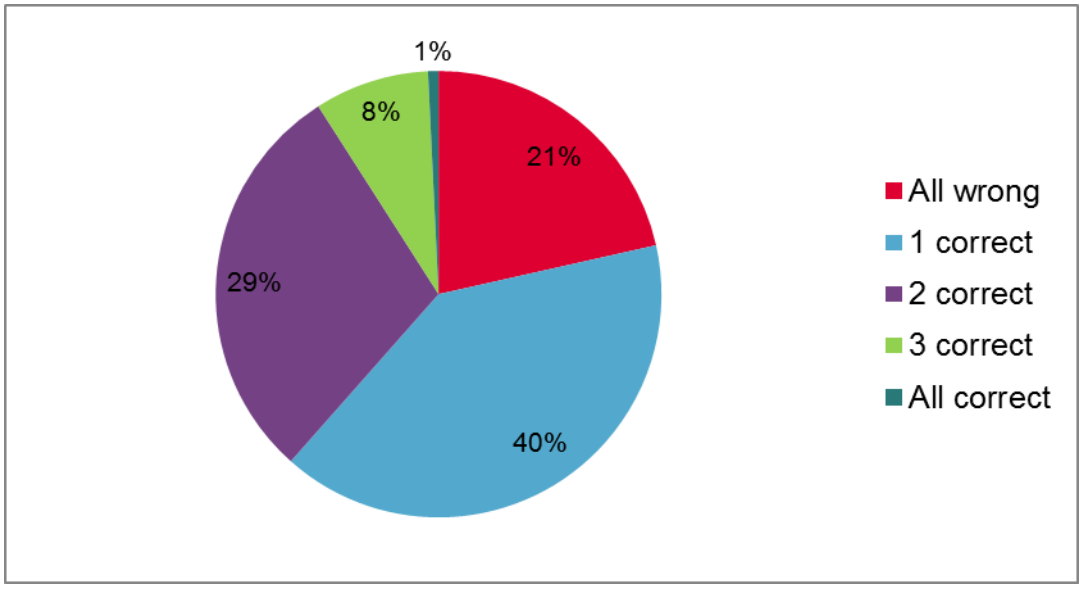


**Figure 7: Proportion of sample correctly answering the four questions regarding current funding**




The implications for the survey of this low level of current understanding are limited, as we deliberately took the decision to use these questions to better inform respondents of the actual funding situation **prior** to asking them to consider how they wish any future funding to be raised.

However, from a policy perspective it reveals the low levels of existing knowledge in the population and the potential danger of assuming that the public have a good prior understanding of these issues. It therefore seems that an important contribution to any debate around future funding models would be to clarify the existing situation, so that the policy discussion could be based on a common understanding rather than diverse misperceptions of the status quo.

## Respondents were able to answer the choice experiments

An important initial stage in the analysis (especially in light of the poor level of understanding of current funding levels and mechanisms) was to determine the extent to which respondents in the survey were able to answer the questions posed in the choice experiments asking them to indicate preferences between different ways of raising future funding. It is reassuring to observe from the diagnostic questions asked following the survey that 81% of respondents stated that they felt able to make the choices in the first experiment, and 76% felt able to allocate percentage shares to different funding models in the second experiment. (We also identified that only 11% of respondents either always chose A or always chose B in the four scenarios in the first choice experiment. Such a pattern might reflect genuine choices but might alternatively be indicative of a poorly considered set of responses. Whatever the explanation, 89% of the responses do not reveal that pattern.)

We also tested the impact on the findings of excluding respondents who either stated that they felt unable to make the choices, or who were consistently choosing the same alternative. These tests revealed that there was no significant improvement in model fit when such respondents were excluded, suggesting that these cases are not outliers and it is appropriate to retain them in the analysis and take into account their indicated preferences.

## Respondents want the same principles to apply in raising future funds for NHS care and social care

One of the first tests we undertook in developing the models was to examine the extent to which the preferences being indicated for different aspects of the funding models differ according to whether the responses are provided in the context of health care or of social care.

The level of consistency observed in the responses to the two sets of choice experiments was immediately apparent, and statistical tests confirmed that unrestricted models, where these two data sources were treated separately did not outperform a restricted model, in which these data were analysed together. Nevertheless, we undertook further tests throughout the model development to investigate whether the preferences with regard to specific aspects of the funding models might differ according to which area of care – NHS or social care – is being funded. These tests did not identify any statistically significant differences (at the 5% level).

As a result, we conclude that while the existing funding models for NHS care and social care differ quite significantly from one another in all countries of the UK, our survey respondents – and by extension the general public – want the same basic principles to apply when raising additional funds for social care as they do when raising funds for NHS care. In the remainder of the analysis we therefore pooled the answers to both NHS care and social care choice questions. The combined findings, which apply to both NHS funding and social care funding, are presented in the following paragraphs.

## Few differences between England, Northern Ireland, Scotland and Wales once we control for socioeconomic differences

We undertook tests to investigate whether preferences between different future funding models varied across the four countries of the UK. Our prior assumption had been that there could be country-specific effects. Public funding of social care is more generous in Scotland than in the rest of the UK, and this might be expected to reflect different attitudes and perhaps to reinforce different expectations of how social care at least should be funded. But we found preferences to be very similar across all the countries of the UK.

We found that once we control for socioeconomic effects across the four countries there is only one residual country-specific difference, and that is small in magnitude. Respondents in Scotland are observed to have a slightly stronger preference than those in the rest of the UK for a collective model under which everyone pays, over a system where the individual

decides whether to contribute. However, this is the only country-specific effect that was identified.

This is not to say that there are no differences in preferences by country. As will be discussed in the following sections, we observe differences in preferences between various socioeconomic groups, and we know that the proportions of the population who are in these groups inevitably vary to some extent by country. However, we do not see evidence that would support an assumption that there are country-specific differences over and above these, or that experience of different current funding models is leading to differences in preferences for how future funds are raised. While contrary to prior expectations, this is entirely consistent with the generally low levels of understanding regarding the level and sources of current funding that we observe.

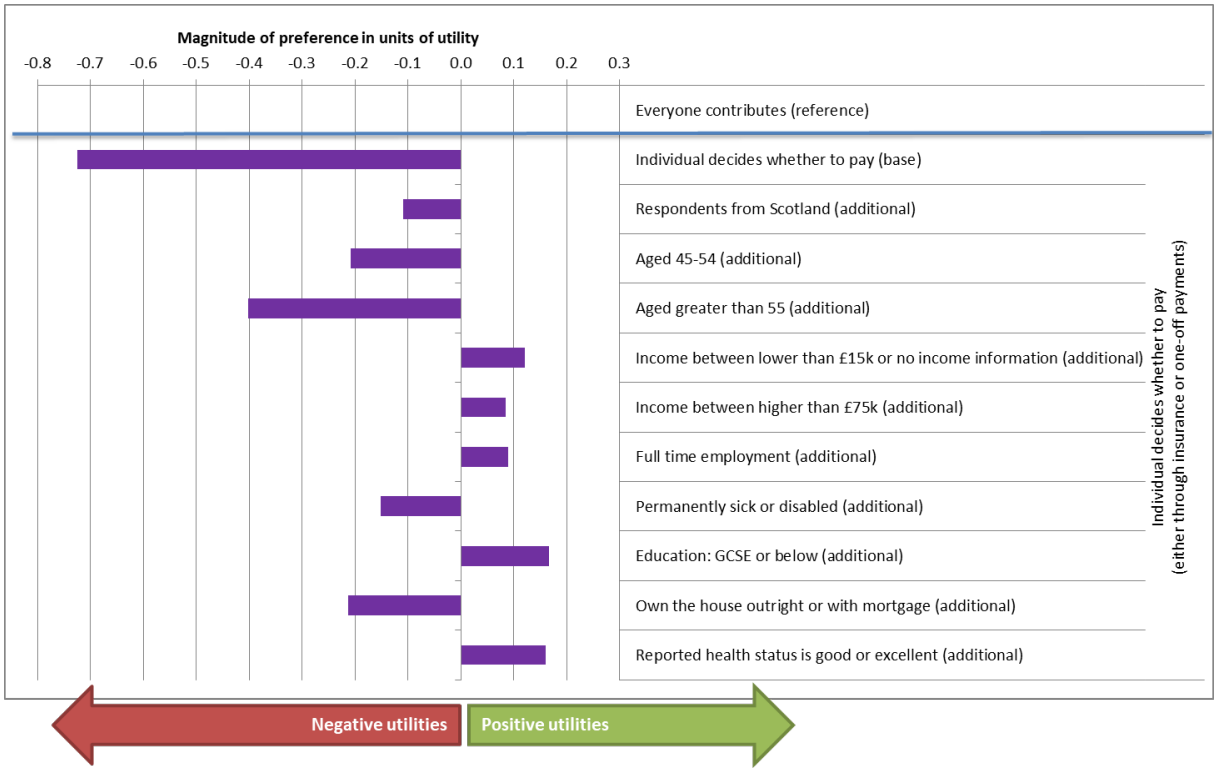
## A strong preference for collectivism over individual discretion

The first attribute in the choice task related to whether the additional future funding model was based on universality/collectivism (everyone pays, everyone gets benefit) or individualism (individual decides whether to pay, individual doesn't benefit if they haven't paid). The latter would apply under systems relying on voluntary insurance or making out of pocket payments when care is wanted.

In Figure 8 we show the relative preference for collectivism over individual discretion. The reference baseline in this figure is a funding system where 'everyone contributes' to the funding pot rather than just paying for their own care. The first purple bar in the figure then shows the value (in units of utility, utils) that is placed on a system where 'individual decides whether to pay' relative to a system where 'everyone contributes'. We found this to be negative and to have quite a large magnitude, around -0.7 utils, which means that respondents on average strongly prefer funding arrangements where 'everyone contributes' over ones where 'individual decides to pay', when all other things are equal.

In general, when the relative preference (coefficient estimated from the model) is greater than zero, this means that the particular attribute level is preferred relative to the reference level (where the coefficient is set to zero) and it is seen as contributing to utility gain. Similarly, when coefficients are less than zero, this means that respondents were 'averse' to a particular option. The absolute magnitudes of the coefficients do not have a direct interpretation but rather it is the relative magnitude of the coefficients in relation to each other that is meaningful. For a given attribute, the relative size of coefficients indicates the order of the preference magnitude. For example, a coefficient of 0.4 means that the preference for a particular attribute level relative to the reference level of that attribute is stronger than the preference for a different attribute level where the coefficient is, say, 0.2.

**Figure 8: Relative preferences for universality/collectivism over individualism in funding NHS and social care**




In the bars in Figure 8 we see a series of additive modifiers on the 'individual decides whether to pay' that apply for different subgroups within the survey. We have tested a wide range of the factors that could affect respondents' preference on each attribute, including their socioeconomic characteristics, their current health and experience of existing services, and aspects of the experimental design. A detailed discussion of the factors being examined is presented in Appendix D. Only the factors that are statistically significant are presented here. These show that as individuals get older they view the individualism model even more negatively. For instance, the utility weight on the attribute 'individual decides whether to pay' for respondents who are aged 55 and above is -1.1 (= -0.7 + (-0.4)), which is much more negative than that of the reference group (respondents who are aged below 45) whose utility weight is -0.7. Conversely, we see that those in either the lowest or the highest income groups are slightly less likely than the average across the whole population to choose the collective model, as are those in full-time employment.

The bottom bar in Figure 8 shows that people reporting good or excellent health status were less unfavourable to the 'individual decides' approach to funding than were people reporting worse health than that, but adding the final bar (around +0.15 utils) to the first bar (around -0.7 utils) shows that even respondents reporting good or excellent health would still on average prefer 'everyone contributes' over 'individual decides whether to pay' (their preference would be -0.7+0.15=-0.55 utils against 'individual decides' relative to 'everyone contributes').

It should be noted that even in the most extreme case – namely, an individual who is in full-time employment but with an annual income lower than £15,000, is educated to GCSE level or below, and reports being in excellent health – although the additive modifiers would together act to reduce the strength of preference for the collectivism model, such a person would on average still be more likely to prefer this (all else being equal) to the individualism model.

We also found that respondents would usually either choose between alternatives that were based on the collectivism model, or (less commonly) would choose between alternatives that were based on the individualism model, but they would less frequently switch between collectivism and individualism.

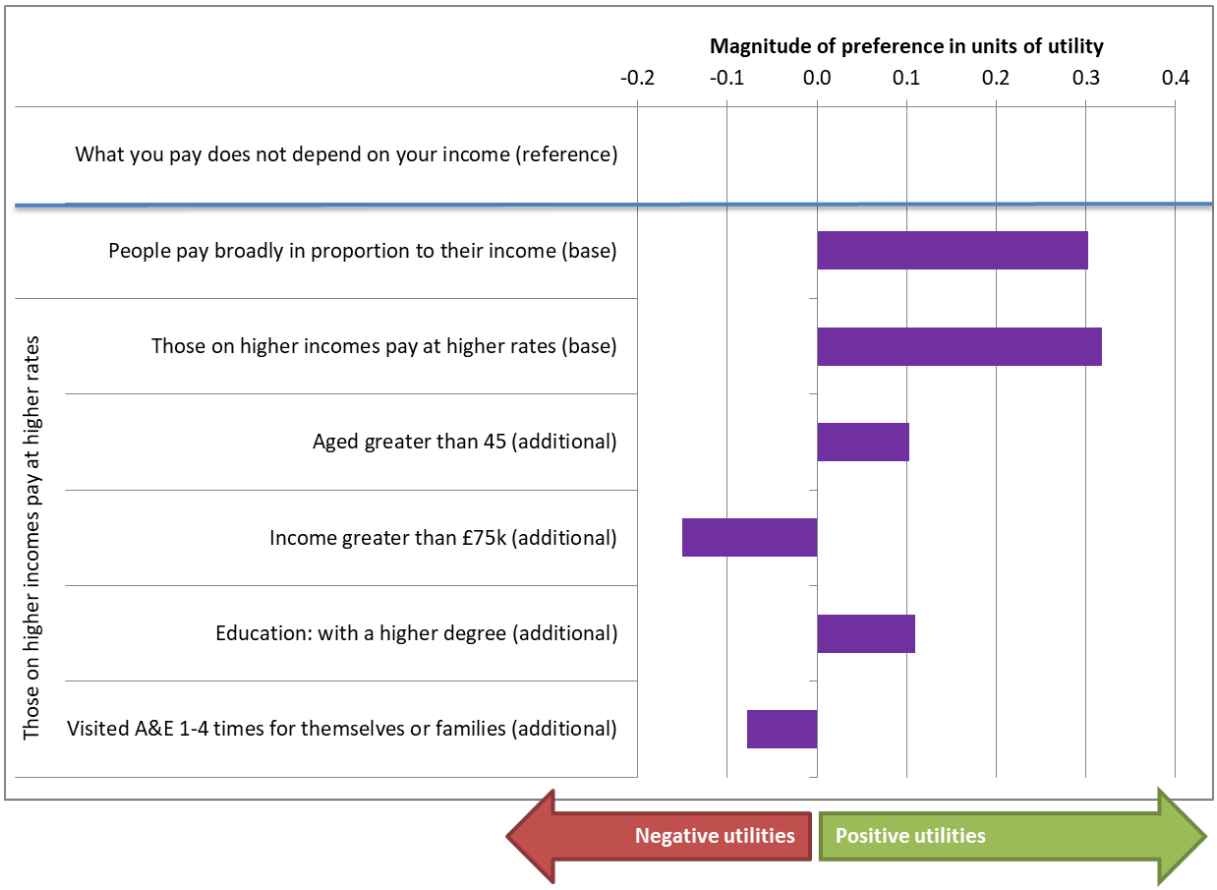
The fact that we do not find significant differences between how respondents would like to pay for NHS and social care is particularly important for this aspect of future funding models. At present, a far greater element of social care funding is either through direct user charges or through unpaid care delivered by families or friends of the care recipient, than is the case for NHS care. The responses to our choice experiments suggest that on average respondents would like the principle of collectivism to apply as much to raising any additional funding required for social care as for NHS care.

## A preference for progressive funding models

Within the choice experiments we also varied the extent to which the amount paid may depend on an individual's income. Three different levels were explored: situations where the amount paid does not depend on an individual's income (you pay the same contribution to funding NHS care and social care regardless of your income or wealth, which economists would describe as 'regressive'); situations where the amount paid is broadly in proportion to an individual's income (which is 'proportional'); and situations where those on higher incomes pay at higher percentage rates (which is 'progressive').

In Figure 9 we use the regressive situation as the base against which we compare the others. From the next two bars in the figure we can see that the proportional and progressive approaches are (all else being equal) both preferred to the regressive approach. However, the extent to which the progressive approach is preferred to the proportional approach depends on the individual. The additive terms show that the progressive approach is more attractive to those aged over 45 or educated to the level that they hold a higher degree. However, the progressive approach is not so strongly preferred by those on the highest incomes (who would have to pay the highest percentage of their income).

**Figure 9: Relative preferences for different levels of income equity**

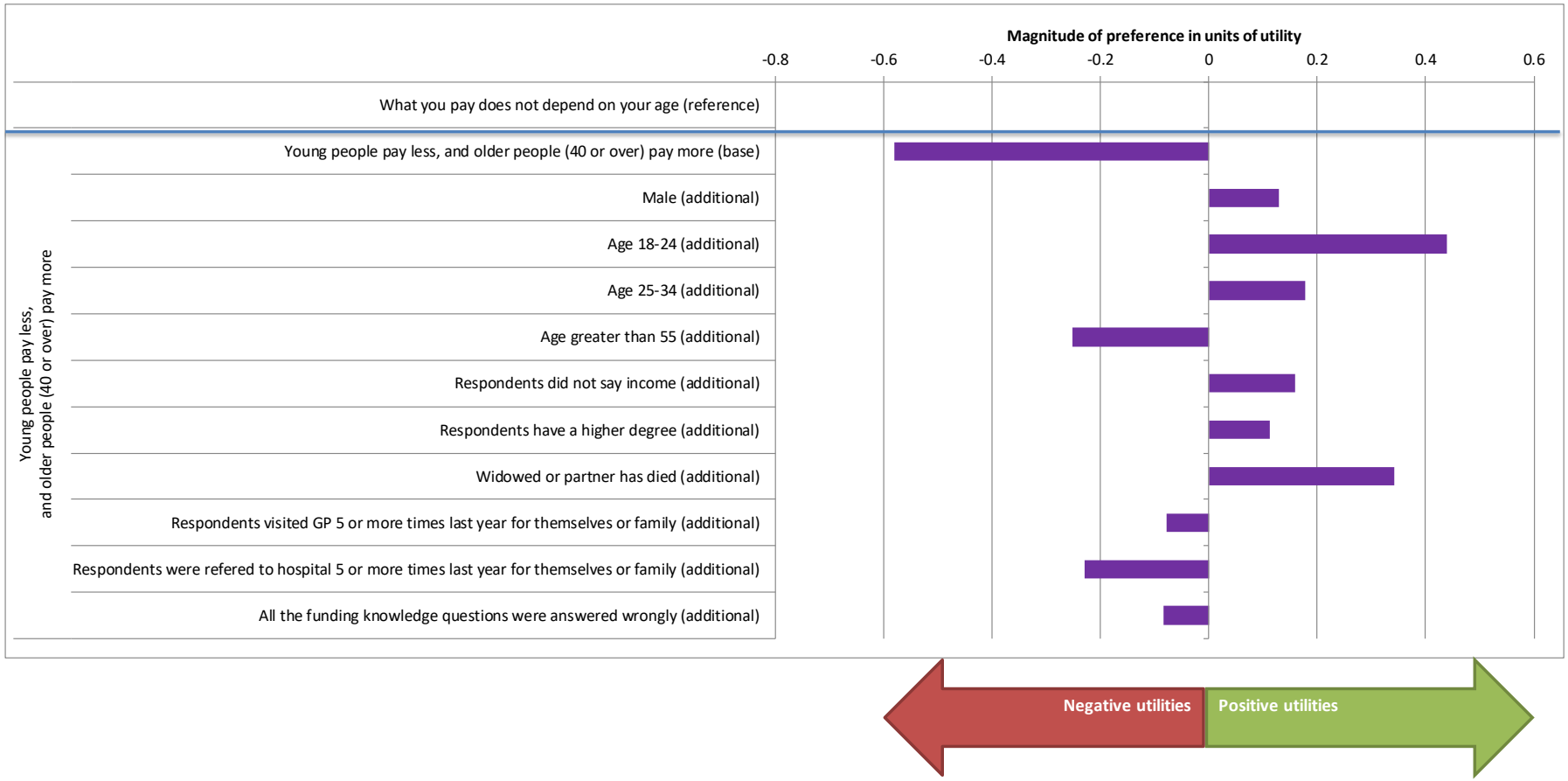



Taking into account all of the possible modifiers, we see that a regressive approach is always the least preferred of the three options and that the difference in preference between proportional and progressive approaches on average is likely to be small.

## A preference not to differentiate contributions by age

In addition to differentiation in future funding contributions by income, our choice experiments tested whether respondents prefer situations where younger people pay less than older people or where there is no such differentiation by age. As can be observed from Figure 10, there is a general preference to not distinguish by age. That represents no change from the status quo in terms of tax laws, which are essentially the same regardless of a person's age. However, the additive modifiers do reveal an age gradient in the expected direction: with younger respondents being more amenable to the idea of paying less, and older respondents being less amenable to the idea of paying more.

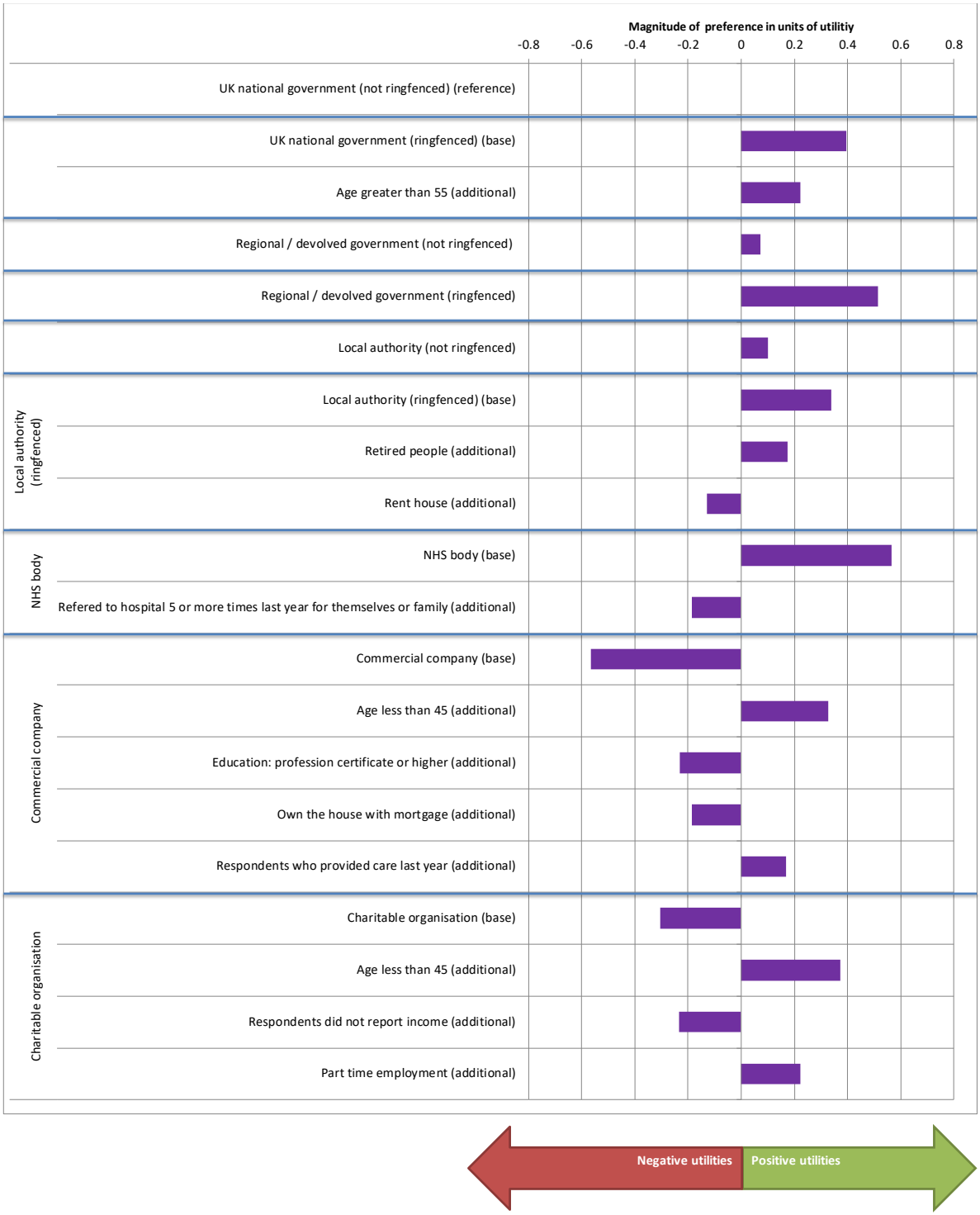
## Figure 10: Relative preferences for age equity



## A preference for public control and ringfencing of funding

Within the choice experiments, respondents were also offered a range of options for what kind of body would receive and control the additional funds raised for NHS care and social care: governmental (at various geographic levels: UK, devolved/regional, local), NHS, commercial company or charity. In the cases where the option is a layer of government we also offered distinct options according to whether the funds raised are ringfenced or not. From Figure 11 we can observe the relative preferences for the different options considered and how these differ between groups of respondents. The baseline for the comparisons illustrated in Figure 11 is that the additional funds required in future are raised and controlled by the UK national Government and are not ringfenced to only be spent on the NHS or social care respectively.

## Figure 11: Relative preference for type of body raising and controlling the funding




First, looking at the three levels of government considered (UK national, regional/devolved or local authority) we can see that there is a small preference for the concept of moving away from the current model of the 'UK national government' raising and controlling the funds, and towards more local forms of government control. That is, there is a small preference on

average for ‘regional/devolved government (not ringfenced)’ shown in the fourth row of Figure 11 over ‘UK national government (not ringfenced)’ shown in the first row. This indicates a small preference for NHS and social care funds to be received and spent at the level of England, Northern Ireland, Scotland and Wales, or at a subnational regional level, rather than at the UK level. Similarly, there is a small preference on average for ‘local authority (not ringfenced)’ in the sixth row over ‘UK national government (not ringfenced)’ in the first row.

There is then a step change in acceptability for situations where the additional funds being raised are ringfenced for NHS or social care. The preference for ringfencing applies at all geographic levels of government bodies and would be a major departure from current funding arrangements. In the case of the funds being raised and controlled by the ‘UK national government’, the ringfencing of these is particularly valued by those aged 55 or over. When it is a local authority raising and controlling the funds, the idea of ringfencing these is valued more highly by those who are retired, but there appears to be a slightly lower level of trust from those who are renting their properties (which will include a proportion of respondents who are tenants to their local authority).

The other body that has high levels of trust for raising and controlling the additional funds is the NHS, which for many is seen as preferable to ringfenced funds controlled by the government. There is a slightly lower preference for an NHS body raising and controlling the funds from those respondents with the highest levels of interaction with hospital services.

It is important to recognise that in the choice experiments we discussed the principle of who raises and controls the additional funding, but not any implications that might follow from this. This is particularly important when thinking about the preferences which we see for localism in government control of funding. While respondents may have thought through some of the possible implications, at no point have we prompted them to consider that this could lead to differences between areas in how care priorities are set, and hence to perceptions of a ‘postcode lottery’ – where the care that is funded in each area could differ.

The choices also explored two further options for who raises and controls the additional funding: a commercial company (as would be the case in a private insurance market) and a charitable organisation. The idea of a commercial company controlling the funds is seen by most respondents as the least preferred of all the alternatives considered. The concern is lower among younger people in society, but commercial companies are still seen as less attractive than a level of government raising and controlling the funds. The views on a charitable organisation raising and controlling the additional funds were split, with those aged 45 or older finding this less attractive than the UK national government raising and controlling the funds without ringfencing, whereas those aged less than 45 were slightly more likely to choose a charitable organisation over the UK national government.

## 3.4 What the DCE tells us about the public acceptability of funding options

The charts in the preceding sections reveal the relative preferences that respondents indicated through our choice experiments for changes in each individual attribute when all other things are equal. One of the strengths of the choice modelling approach we have used is that we can also explore how these different aspects of the funding models may interact in situations when they are applied to a sample that is weighted to reflect the UK population by gender, age and country of residence. We can do this by using our models to forecast the levels of public acceptability of two competing funding models, akin to holding a referendum on which of the two options the public would prefer. This gives us a detailed and rich insight into public preferences for different ways of raising additional funds for NHS and social care.

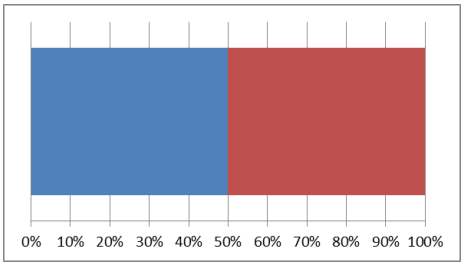
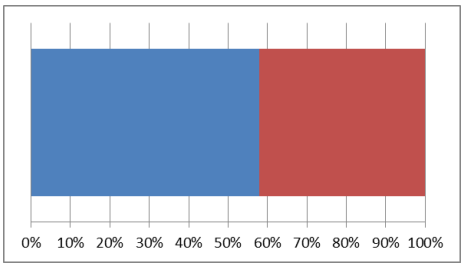
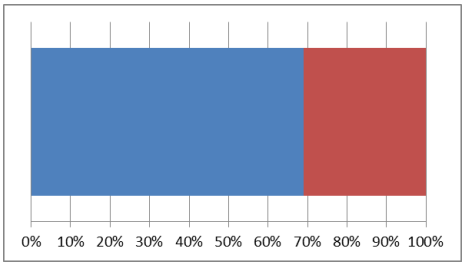
We start by taking a reference case option where:

- everyone contributes and everyone gets the benefit
- there is no differentiation in contribution by income
- there is no differentiation in contribution by age
- the funds are received and controlled by the UK national government without ringfencing.

This is broadly the situation for the current funding of the NHS out of general taxation (of which income tax is a minority). Under a scenario where both options on offer are set to be identical to this base case, we obviously see no preference between them. This can be represented as 50% share of the 'votes' for each. We can then start to vary different attributes of the funding models. Simply moving to a situation where there is a choice between the reference case described above, and an alternative that is the same in all respects other than introducing differentiation by income, with those on higher incomes paying at a higher rate (progressivity), our model predicts (based on the results of the DCE) that the vote would be split 58% to 42% in favour of the more progressive funding approach.

Making a further change and saying that the funds raised under the progressive approach will still be controlled by the UK national government, but will be ringfenced, leads to a forecast of a 69% share of the vote in favour of that option versus 31% for the reference case. These scenarios and their predicted outcomes are shown in Figure 12.

**Figure 12: Forecasts of public acceptability of different funding options**

| Scenario A | Forecast of preferred option | Scenario B |
|---|---|---|
| • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national government without ringfencing |  | • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national government without ringfencing |
| • Everyone contributes and everyone gets the benefit<br>**• Those on higher incomes pay at higher rates**<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national government without ringfencing |  | • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national government without ringfencing |
| • Everyone contributes and everyone gets the benefit<br>**• Those on higher incomes pay at higher rates**<br>• There is no differentiation in contribution by age<br>**• The funds are received and controlled by the UK national government and ringfenced** |  | • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national government without ringfencing |

A wide variety of scenarios can be tested using this model. The most extreme comparison is when we compare the following alternatives: Option W reflecting a progressive taxation model with ringfencing of the funds for NHS and social care (which is not a system currently in operation in any of the countries we have reviewed[2]), versus Option X which is more akin to a discretionary insurance model, or a co-payment model similar to that currently used for some aspects of social care:

Option W:

- Everyone contributes and everyone gets the benefit
- Those on higher incomes pay at higher rates
- There is no differentiation in contribution by age
- The funds are received and controlled by an NHS body

Option X:

- Individual decides whether to pay but doesn't get benefit if hasn't paid
- There is no differentiation in contribution by income
- Young people pay less than those over 40 years of age
- The funds are received and controlled by a commercial company

Under this scenario the vote for the raising of the additional funds would be split 93% to 7% in favour of Option W, the progressive taxation model, compared with the discretionary insurance/co-payment model.

A policy response to this may be to seek to make the co-payment model more progressive and equitable by strengthening means testing on income. We have therefore also tested a scenario where the co-payment alternative is progressive (Option Z – which is again a hypothetical funding system, not one currently in operation in any of the countries we reviewed) against a general taxation model that is regressive, with funding held by the UK national government without ringfencing (Option Y – which would be like the UK model for NHS funding but with all additional funds being raised from (regressive) VAT rather than (progressive) income tax), that is a scenario comparing:

Option Y:

- Everyone contributes and everyone gets the benefit
- There is no differentiation in contribution by income
- There is no differentiation in contribution by age
- The funds are received and controlled by the UK national Government without ringfencing

Option Z:

- Individual decides whether to pay but doesn't get benefit if hasn't paid
- Those on higher incomes pay at higher rates
- Young people pay less than those over 40 years of age
- The funds are received and controlled by a commercial company

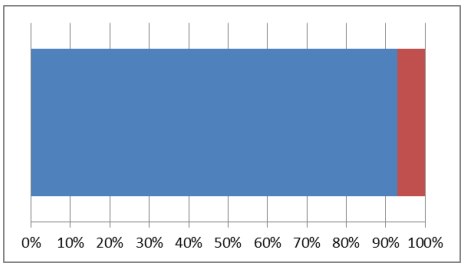
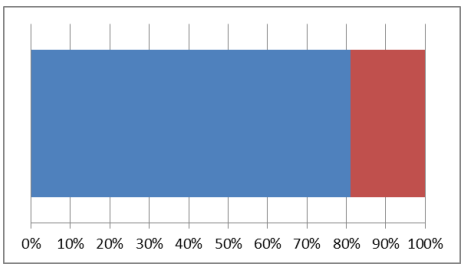
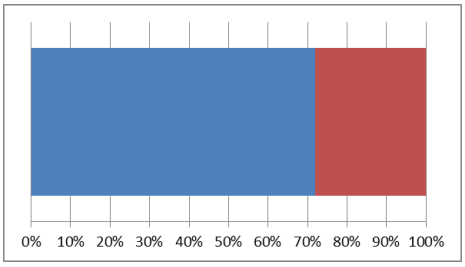
Under this scenario we forecast that the regressive taxation model, Option Y, would still receive a strong vote of 81% and the co-payment model, even though framed in a more progressive way, would still receive only a weak vote of 19%. This illustrates again the strength of the desire for a collective funding approach for both NHS care and social care.

This is in part influenced by the fact that in the above scenario the co-payments are received and controlled by a commercial company, but even in scenarios where we change this and

place the co-payment on an equal footing with the funds being received and controlled by the UK national Government without ringfencing there is still a 72% vote for the regressive general taxation model over the co-payment model (28%).

These scenarios and their predicted outcomes are shown in Figure 13.

**Figure 13: Forecasts of public acceptability of taxation versus co-payment options**

| Scenario A | Forecast of preferred option | Scenario B |
|---|---|---|
| • Everyone contributes and everyone gets the benefit<br>• Those on higher incomes pay at higher rates<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by an NHS body |  | • Individual decides whether to pay but doesn't get benefit if hasn't paid<br>• There is no differentiation in contribution by income<br>• Young people pay less than those over 40 years of age<br>• The funds are received and controlled by a commercial company |
| • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national Government without ringfencing |  | • Individual decides whether to pay but doesn't get benefit if hasn't paid<br>• Those on higher incomes pay at higher rates<br>• Young people pay less than those over 40 years of age<br>• The funds are received and controlled by a commercial company |
| • Everyone contributes and everyone gets the benefit<br>• There is no differentiation in contribution by income<br>• There is no differentiation in contribution by age<br>• The funds are received and controlled by the UK national Government without ringfencing |  | • Individual decides whether to pay but doesn't get benefit if hasn't paid<br>• Those on higher incomes pay at higher rates<br>• Young people pay less than those over 40 years of age<br>• The funds are received and controlled by the UK national Government without ringfencing |

This has quite profound implications when thinking about how the public would like to see any shortfall being met in the funds required to deliver social care. The responses to our

choice experiments show that they would like to see the same collectivist principles apply as to any additional funding for NHS care, and the strength of this preference is revealed when comparing different funding models in this way.

# 4. Discussion and conclusions – what do we now know about the public's preferences?

This section:

- summarises what is new about the research reported in this paper
- presents caveats that should be kept in mind
- draws out policy implications of what we have found about the general public's preferences for how to fund NHS and social care.

## 4.1 A new and rigorous approach to understanding the public's preferences for funding NHS and social care

To our knowledge, the research reported here represents the first use of a DCE approach to investigate the general public's preferences for different ways to find additional funding for NHS and social care. We have taken care to use a rigorous approach, building up to and designing the DCE on the basis of detailed background research, discussion and consultation with experts in the subject area, thorough discussions with members of the public at five focus groups, cognitive testing and piloting. By means of the detailed focus group discussions (FGDs) with 46 people and a survey and a DCE with another 2,756, we have been able to probe carefully the preferences of members of the general public in all four UK countries for how they would like any additional funds to be raised in future to pay for NHS care and social care. Opinion surveys have repeatedly found public majority support in the UK for tax funding of the NHS. Our findings are consistent with that, but go deeper into the reasons. We have also extended the analysis of the public's preferences for how to raise additional funds in future for social care.

We must be cautious when extrapolating from the views of quite modest samples of the population, but we have found great consistency in the main preferences revealed, across countries and across age, gender and socioeconomic groups.

Past opinion surveys and our own research have to be seen in the context that many members of the general public do not know the scale of expenditures on NHS care or social care. Unfamiliarity with that scale may explain the reluctance of some members of the focus groups initially to accept the need for large additional funds and to accept that the gap would not be closed by, say, efficiency improvements or extracting payments from the 'undeserving'. While getting on for half of our survey respondents understood that the NHS is almost entirely publicly funded, with only 1% of its money coming from user charges, more than half did not realise that. How social care is funded, and the heavy reliance on people

buying it for themselves or on family and friends providing informal care, is even more poorly understood. There is clearly an important role for improving public understanding of social care funding.

Against this background, the DCE survey and the focus groups have together yielded clear evidence about the general public's preferences. When asked to engage with the questions of how to raise additional funds for NHS care and social care, we found people willing to do so and expressing clear views. The FGDs were fruitful and the DCE was answered with clear preferences emerging and little 'noise' in the responses. In the DCE we deliberately asked respondents about their preferences between the attributes of different funding approaches, rather than naming those funding sources 'income tax', 'mandatory insurance', 'voluntary insurance', 'out of pocket expenditure' and so on. Our focus was on the public's preferences and we did not attempt, for example, to estimate the administrative and other costs of raising funds in different ways.

We deliberately asked people to think about both funding NHS care and funding social care, so that each was considered explicitly in the context of the other. That, and the widespread poor understanding of how social care is funded currently, may have contributed to our finding from the DCE that preferences for funding social care are very similar to those for funding NHS care. We nevertheless consider this an important finding.

## 4.2 Caveats to the DCE

As with any research, there are some important caveats to the DCE study. The results are based on the responses that have been provided in a survey rather than observations of actual behaviour. However, the approach we have used constrained people to consider what attributes of funding models were relatively more important to them. Our method has allowed us to explore a wide range of scenarios to support our development of the models of public preferences and they give rich and important insights into the trade-offs that individuals are willing to make.

We have asked people to consider the principles underpinning the way that any additional funding is raised, but we have not explicitly explored with them the impact that these may have on their own pocket under any individual funding scenario, or any impact that may follow on how care may be delivered, nor on the cost of implementing any of the funding options. Nevertheless, the DCE does reveal that there are some principles around which the public have strong preferences. The public acceptability of different models for raising additional funding evidently varies significantly, and the scale of this can be estimated, with some options proving to be deeply unpopular and others being far more acceptable to the general population.

We note that the sample of respondents to our DCE survey appears to differ in some characteristics from the UK population overall. On average, the respondent sample appeared to have poorer self-assessed health than the overall population, and a higher

percentage of the respondents may have had experience of providing at least a small amount of unpaid care.

## 4.3 What policy changes do the public's preferences imply?

We have found, in essence, that the public in all four UK countries want the approach to obtaining additional funds for social care to be the same as the current approach to funding the NHS. For both NHS and social care there is a significant preference for 'everyone contributes' and 'everyone benefits', in other words, a collective rather than individualistic approach to additional funding, across all subgroups of the population. Older age groups have a stronger preference for 'everyone contributes/everyone benefits' than younger age groups, but all age groups share that preference on average. Respondents from Scotland have (slightly) stronger preferences than respondents from the rest of the UK for 'everyone contributes/everyone benefits', but respondents from all countries share that preference on average. The strong preference for collectivism in raising additional funding is familiar from opinion surveys about funding the NHS and consistent with the predominant current approach to NHS funding. But arguably it offers a strikingly new perspective on the continuing debate about how to fund social care in the UK. Perhaps quantification of the extent of the public's apparent desire for tax funding of social care to meet growing demands is the most immediate question to resolve?

Rather than everyone paying the same regardless of their income, there is a clear preference for the amount paid to rise in proportion to income, and a slightly stronger preference yet for it to rise more rapidly than income so that those who are better off pay a greater percentage of their income than those who are less well off (as happens with progressive income tax, for example). This is true across all income and age groups, although those with annual income above £75,000 and those younger than 45 display weaker preference for this than do the rest of the population.

Taken together, these preferences would be consistent with finding the additional funds for both NHS and social care from increases in progressive income taxation. They also amount to a clear opposition to increased user charges or a reliance on discretionary insurance to raise the additional money.

Respondents of all ages and in all four countries prefer that contributions do not differ by age, but age differentiation is less unpopular among the younger age groups who would benefit from it.

The public show a strong preference for raising additional funds for both NHS and social care by a public body and one that is constrained to spend the funds raised only on NHS care or social care respectively. That preference is present across all age groups but is strongest among people aged 55 and over. The public would prefer to know that the extra money they contribute is going to be spent on NHS care or social care and cannot be diverted to some other public spending purpose. If people had to pay for care out of their

own pockets they would necessarily have that reassurance, but to achieve the same effect with tax funding of NHS and social care is more difficult. Hypothecation of taxes can take various forms. All of those forms depend on the credibility given by the public to the promise by the government (whether national, regional or local) that each pound of hypothecated tax it collects will translate into an extra pound of NHS or social care expenditure. That said, the results of our research provide evidence that hypothecated taxation for NHS and social care would be popular with a majority of the general public.

Within the categories of public bodies, we find that funds being raised and controlled by a devolved/regional government body is slightly preferred to them being raised and controlled by the UK national government. However, there is a trade-off between the greater trust that the population seems willing to give to more local decision makers and the fiscal powers necessary to drive equitable outcomes across the whole of the UK. Changes to taxation powers at subnational levels might be the implication of meeting this preference. Furthermore, we have not explored as part of this research the practicality of establishing a mechanism for redistributing funds from richer to poorer parts of the UK and from areas with below average need for NHS and social care to areas with above average need.

A final, important conclusion we draw from the focus groups and the DCE is that the public's preferences are generally very similar across the four countries of the UK. Consequently, the policy implications are also very similar across the UK. There are, as noted in the previous chapter, a small number of differences between subgroups within the UK population in the strengths of their preferences. But we found in all four countries a shared desire for a collective approach to funding NHS and social care; a shared preference that contributions should be proportional or progressive with respect to income; little interest anywhere in older people being required to contribute more than younger people; and a common desire that funds should be raised and controlled by a public (not private) body and preferably one where the funds raised are ringfenced.

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# Appendix A – Focus Groups Topic Guide

| |
|---|
| Researchers introduce themselves. |
| Has anyone been to anything like this before? |
| I have here a list of things I'd like to cover but really want to hear your views on the issues we'll be introducing. |
| There are no right or wrong answers. Everyone is entitled to their own view, so I'd like to hear from everyone because everyone's view is valid. |
| You don't have to answer all of the questions. |
| You are free to leave before the end of the session, if you wish. |
| You should have been told when you were invited here that we will be recording the discussions, although Jo will also be taking notes. The recording will make sure that we don't miss anything. |
| This is one session of 5 that we are running around the UK on this project. |
| Is everyone happy for me to record the session? |
| SWITCH ON RECORDER |
| The aim of this research is to provide independent and robust evidence that can be used to improve the quality of debate on the long term funding of health and social care in the UK. |
| The Health Foundation is funding this research. It is an independent charity that works with policy-makers, researchers and those in the front line delivering health and social care with the aim of improving health and health care for people in the UK.<br><br>They are funded by an endowment so they do not need to fund raise. |
| The findings will be published in a discussion paper, which will be available from the Health Foundation website. No one will be identified in the report. All the information will be collected together and anonymised. |
| Introductions from participants.<br><br>Each participant to introduce themselves with name, whether they have children, what they do for a living, if they are employed. |
| BRAIN STORM:<br>Please write on Post It notes what comes to mind when you hear the term 'healthcare'. |
| And now, on a different Post It, when you hear the term 'social care' what comes to mind? |

BRIEFLY EXPLORE RESPONSES AND CLARIFY

What sort of needs would you include within social care?

PROBE FOR ANY OTHER 'DEFINITIONS' OR THOUGHTS

SET SCENARIO FOR THE REST OF THE DISCUSSION USING SLIDES

- healthcare definition
- healthcare funding shortfall
- social care definition
- social care funding shortfall
- cause of the shortfall and question: where should the extra billions come from?
- efficiencies will not generate enough and cannot take money from other government budgets

Any questions about this? Is this clear?

As far as you know, how is the NHS funded?

PROBE FULLY TO GET BEYOND 'GENERAL TAXATION' RESPONSE – what do you mean by 'general taxation'?

Who pays? How much do people pay – relativities not absolutes?

FACILITATOR TO WRITE ON FLIP CHART

And as far as you know, how is social care funded? Who pays? Where does the money come from?

Any other sources?

FACILITATOR TO WRITE ON FLIP CHART AS SECOND COLUMN

How do you think healthcare *ought* to be funded? Who *should* fund it?

If you were designing the funding system for healthcare from scratch where would you get the money from?

PROBE FULLY FOR ALL SOURCES

ADD TO LIST ON FLIP CHART

Why do you say…?

What are the benefits of…?

What are the disadvantages of…?

Should it remain free at the point of delivery to everyone?

What, if anything, should people pay for themselves? What would you be prepared to pay yourself?

Do you as a society want more healthcare? Do you want it to be funded publicly?

RESEARCHER TO INJECT INFORMATION ABOUT SYSTEMS IN OTHER COUNTRIES AS APPROPRIATE

How do you think social care *ought* to be funded? Who *should* fund it?

If you were designing the funding system for social care from scratch where would you want to get the money from?

PROBE FULLY FOR ALL SOURCES

ADD TO LIST ON FLIP CHART

Why do you say…?

What are the benefits of…?

What are the disadvantages of…?

Should it be free at the point of delivery like healthcare? Why/why not?

What would you be prepared to pay for yourself?

Do you as a society want more social care? Why? Do you want it provided by the state? Do you want to find it for yourself? Why?

RESEARCHER TO INJECT INFORMATION ABOUT SYSTEMS IN OTHER COUNTRIES AS APPROPRIATE

ONCE OPTIONS GENERATED BY THE GROUP HAVE BEEN EXPLORED, ADD ANY OF THE FOLLOWING NOT LISTED BY THE GROUP FOR BOTH HEALTH AND SOCIAL CARE

- Income tax
  - Pay from e.g. 40 as in Japan
  - Pay more if have no children
- Wealth tax (EXPLAIN WEALTH AS NECESSARY)
  - Tax on value of your property
  - Equity release
  - Inheritance tax
  - Deferred payment after death
  - Tax on recipient rather than on the deceased's estate
- Compulsory (mandatory) insurance
- Voluntary insurance
  - For health care
  - For social care
  - To cover e.g. sporting and traffic accidents
  - Pooled or individual
- As and when needed by the user (out of pocket)
  - Includes: informal family care
  - Pay for parents
  - Self-inflicted conditions that are not insurable
- Sin taxes
  - Sugar, alcohol, tobacco
- Charging non-UK residents

How do you decide between different ways of raising money? What are the criteria that you used to decide whether a particular way of raising funds was better than another?

PROBE: Were you thinking about:

- Coverage, percentage of the population covered?
- Equity, should everyone pay, whether or not they get care?
- Social responsibility, should those who can afford it pay for those who can't?
- Personal responsibility, should people just pay for themselves? for their family? Should people be made to pay for their relatives' care?
- Efficiency, if everyone pays in it's cheaper and more efficient to collect the money and for the state to buy what's needed?
- Simplicity, if everyone pays through established mechanisms it's easy to implement?
- Fairness, similar needs are treated in the same way, irrespective of their cause?
- Control, who has control over the money and how it is spent?

Does who pays impact on what is provided? Quality, scope?

Is there one method that is the best method?

| |
|---|
| Is that the only method that should be used?<br>IF RESPONSE IS FOR MIXED METHODS OF FUNDING, EXPLORE BALANCE BETWEEN OPTIONS |
| USE SLIDE TO DEMONSTRATE HOW NHS AND SOCIAL CARE ARE PAID FOR<br>Does this balance look right to you?<br>What should change?<br>Should people pay more themselves for healthcare?<br>Should the state pay more towards social care?<br>Are there other sources of funding that could be brought in? What are they? |
| **RING FENCING/EARMARKING (HYPOTHECATION)**<br>Should there be specific taxes to pay for health care? Should some taxes or proportion of taxes be ringfenced to pay for health care? Why?<br>Should there be specific taxes to pay for social care? Should some taxes or proportion of taxes be ringfenced to pay for social care? Why?<br>IF YES: What are the benefits of this?<br>PROBE: clarity, unavailable for general public spending, transparency, accountability, trust<br>What are the disadvantages?<br>Would it be better if the money was collected by another body outside government? E.g. an insurance company, a non-governmental public body, a charity?<br>If NO: why?<br>PROBE ON TRUST IN GOVERNMENT NOT TO 'RAID' THE FUND FOR OTHER PURPOSES |
| **PROGRESSIVE/REGRESSIVE**<br>Should some people pay more than others…<br>for healthcare?<br>for social care?<br>IF YES, why? Who should pay more? What do you mean by x group? Why these groups/this group?<br>What do you mean by more? A higher proportion of their income/wealth or the same proportion but because they have more they will pay more? EXPLORE FOR BOTH INCOME AND WEALTH<br>If NO: Why? |
| **LOCAL OR NATIONAL**<br>Should tax for health care be raised nationally or locally?<br>Should tax for social care be raised nationally or locally?<br>What do you mean by local? PROBE FOR GEOGRAPHICAL DEFINITION<br>Should local politicians decide on local tax rates? |
| Any last points or questions?<br>THANK AND CLOSE |

# Appendix B – Expert Reference Group

The members of the Expert Reference Group are:

Professor David Bell – University of Stirling

Anita Charlesworth – The Health Foundation

Juliet Chua – Department of Health and Social Care

James Lloyd – Formerly Director of the Strategic Society Centre, London

Professor Mark Llewellyn – Welsh Institute for Health and Social Care, University of South Wales

Professor Nicholas Mays – London School of Hygiene and Tropical Medicine

Professor Ciaran O'Neill – Queen's University Belfast

# Appendix C – Survey Questionnaire

## Introduction

Thank you for agreeing to participate in this interview. The purpose of this project is to develop an understanding of the UK public's preference for how we might fund health and social care in the future.

This study is being undertaking by RAND Europe, a not-for-profit research institute, for the Health Foundation, an independent charity committed to bringing about better health and health care for people in the UK. The aim of the study is to better inform the debate regarding how the public feels some of these challenging issues should be addressed going forwards.

Please do your best to answer the questions as you understand them. We will undertake analysis on these to understand how preferences differ between different groups within society, but we will not identify individuals at any stage so your identity will be treated as confidential and kept private.

## Section 1. Screening Questions

**S1**
How old are you?
1. 18 – 24 years
2. 25 – 34 years
3. 35 – 44 years
4. 45 – 54 years
5. 55 – 64 years
6. 65 – 79 years
7. 80 years or older

**S2**
Are you?
1. Male
2. Female

## Section 2. Current Health Condition and Experience of Health and Social Care

**Q1**
Please think back over the last 12 months about how your health has been. Compared with people of your own age, would you say that your health has on the whole been ...?
1. Excellent
2. Good
3. Fair
4. Poor
5. Very poor
6. Don't know

**Q2**
Are you registered with a GP in the UK?
1. Yes
2. No, but I could be
3. No, I am not eligible

**Q3**
Have you visited a GP or a hospital for yourself or a family member in the last 12 months?
*Please tick the boxes that apply. (Please give your best estimate if you cannot recall the exact number)*

| | | Zero times | 1 – 4 times | 5 or more times | Don't know |
|---|---|---|---|---|---|
| Q3a | Number of visits to GP | | | | |
| Q3b | Number of times referred to a specialist, e.g. at a hospital | | | | |
| Q3c | Number of times attended a hospital Accident & Emergency department | | | | |

**Q4**
Have you (personally) provided more than one hour (in total) of help or support to anyone in the last month because they have long-term physical or mental ill-health or disability, or problems relating to old age? Please do not count anything you do as part of your paid employment?
1. Yes
2. No

**Q5**
Over the last ten years, have either you or someone you are close to ever been in need of regular help and long-term care?
1. Yes
2. No

*(If yes, go to Q6, else Q7)*

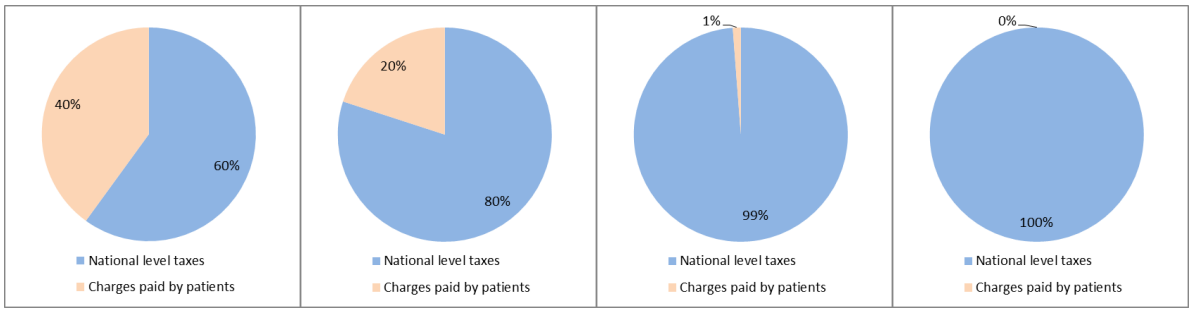
**Q6**
Thinking about this case of long-term care need you have just told me about (or thinking about the most recent case if there has been more than one), was the appropriate help and long-term care given to this person in need (whether yourself or someone you are close to)?
1. Yes
2. No

## Section 3. Knowledge /Awareness of Health and Social Care Funding

We would now like to ask some questions about how much you think is spent on health and social care and where this comes from at present.

**Q7**
Which of the following amounts of money do you think is approximately the current level of NHS expenditure in the UK each year?
1. £20 – £30 billion
2. £50 – £60 billion
3. £100 - £110 billion
4. £150 – £160 billion

**Q8**
Which of the following charts do you think best describes where the NHS gets its funding from currently? (Note that the charges paid by patients include the charges paid by family or friends)

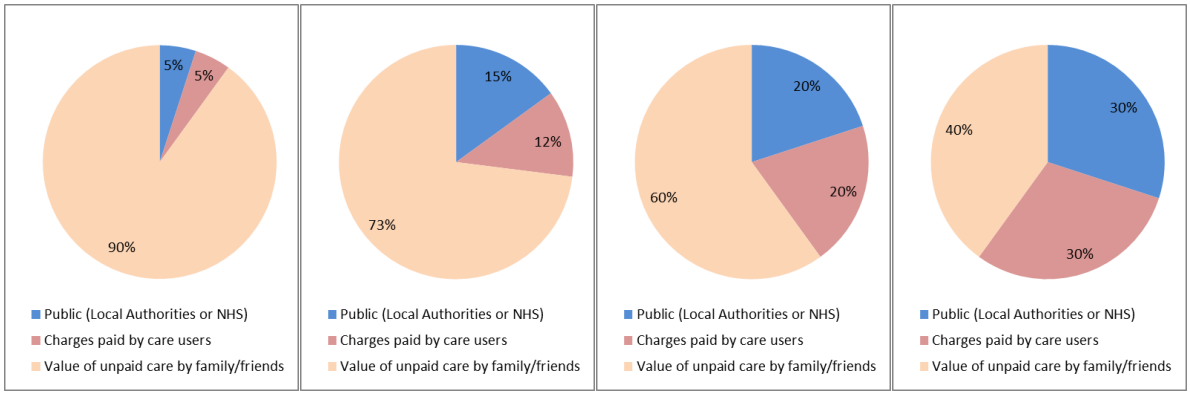



1 2 **3** 4

**Q9**
Which of the following amounts of money do you think is approximately the current level of public expenditure (by local authorities and the NHS) in the UK on adult social care each year? **By 'social care' we mean support with carrying out activities of daily living that the elderly or disabled might need help with.**

1. £5 – £10 billion
2. £10 – £15 billion
3. £15 - £20 billion
4. £20 – £25 billion

**Q10**
Which of the following charts do you think best describes where adult Social Care funding comes from currently?




1 2 **3** 4

## Section 3. Knowledge of Health and Social Care Funding - Answers

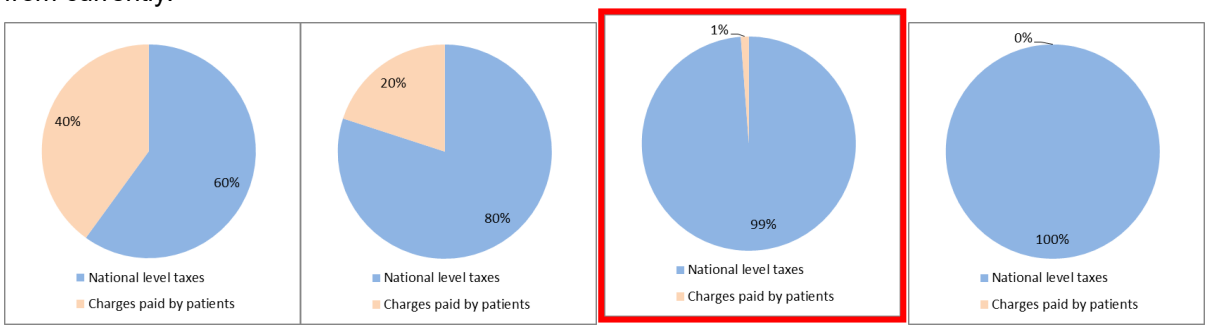
We will now recap on the previous questions and let you know what the actual situation is.

We asked you, which of the following amounts of money do you think is approximately the current level of NHS expenditure in the UK each year?

1. £20 – £30 billion
2. £50 – £60 billion
3. £100 - £110 billion
4. £150 – £160 billion

***In the UK in 2015-2016 total NHS Expenditure was £150 billion***

We also asked which of the following charts you think best describes where the NHS gets its funding from currently.




1 2 **3** 4

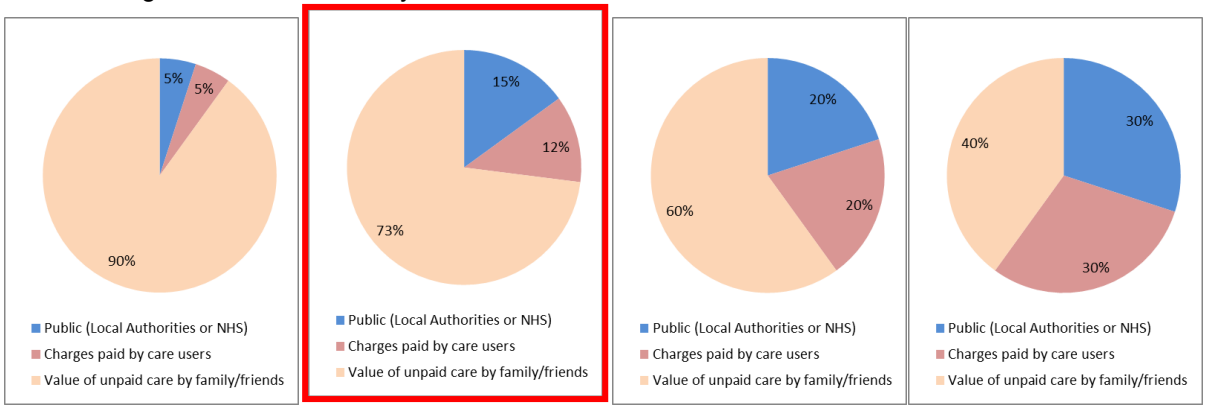
***In 2015-2016, 98.8% of the NHS was funding through national level taxes.***

We then turned to social care and asked you which of the following amounts of money you thought was approximately the current level of public expenditure (by local authorities and the NHS) in the UK on adult social care each year?

1. £5 – £10 billion
2. £10 – £15 billion
3. £15 - £20 billion
4. £20 – £25 billion

***In 2015-2016, the total social care expenditure from local authorities and NHS was £17 billion.***

Finally we asked you which of the following charts do you think best describes where adult Social Care funding comes from currently?




1 2 **3** 4

***In 2015-2016, 15% of the social care was funded through public (local authorities and NHS), and 12% was from care users, with 73% coming from unpaid care by care users' family and friends.***

## Section 4A. Options for Funding Health Care

INTRO SCREEN 1

We would first like to focus on **health care**, by which we mean services provided by the NHS. At this stage we please do not consider social care, by which we mean the support available for carrying out activities of daily living.

As we showed you earlier, the NHS currently costs £150-160 billion and 99% of that comes from national level taxes.

However, the NHS is under increasing financial pressures. In part this is because the population is on average getting older as we are all living longer; however, costs are also driven up by new technology, new and better treatments becoming available, rising costs and wages.

It is estimated that by 2035, there will be a funding shortfall of £19 - £64 billion (equivalent to £290 - £975 per person per year). Improving efficiency of the health system won't be enough to meet the shortfall. It is also not possible to take money from other government budgets e.g. education, defence etc.

We therefore need to think about how we would raise this additional money to meet the care needs of the population.

---
INTRO SCREEN 2

We would like you to think about a number of different ways that the country could raise additional funds for **health care**. In thinking about how this funding is raised we would like you to consider the following:

**Who will pay:**

> This is about whether everyone pays the same or we expect some groups in society to pay more, either due to their age or how much they earn.
>
> We may also give you options to consider where we could decide that for some aspects of care it is down to the individual to pay (for example, we could decide that everyone pays for their prescriptions or that there is a charge to see a GP).

**Who gets the benefits:**

> In the cases where the funding is raised through payments that are compulsory across society everyone would have full access to all services.
>
> However, if individual top-up payments were introduced, only those paying these would get the services (for example, the paid prescriptions or the access to GP appointments).

**Who receives and controls the fund:**

> There are a range of bodies that could hold the funding obtained, either at different levels of government, within the NHS itself, or independent organisations that take responsibility for ensuring the funding is used appropriately.
>
> We are also interested in whether you think that this should be ringfenced or not, by which we mean whether the organisation holding the funds has discretion to use them for other purposes if necessary.

Please consider each of the four choices, and indicate which option you would choose as your preferred way to find the extra money needed going forwards for the NHS service.

There are no right or wrong answers, and these choices may require you to make some trade-offs. However we are interested in understanding your preferences if these were the choices available.

Please remember that we are considering the funding for **health care** and not social care.

**Scenario 1 (Example)**
Which of the following options would you choose to raise the additional funds for **health care services**?

| | Option A | Option B |
|---|---|---|
| **Who will pay** | Everyone contributes | Individual decides whether to pay (either through insurance or one-off payments) |
| **Any difference by income** | People pay broadly in proportion to their income | What you pay does not depend on your income |
| **Any difference by age** | What you pay does not depend on your age | Young people pay less, and older people pay more |
| **Who gets the benefit** | Everyone gets benefit | Individual doesn't benefit if hasn't paid |
| **Who receives and controls the fund** | Charitable organisation | Local Authority (ringfenced for health) |
| I would choose | ☐ | ☐ |

*<4 CHOICE SCENARIOS>*

In the next few questions, we would like you to consider a situation where there are a number of different funding options available and you could decide how much is raised through each.

For example, of the 100% funding shortfall, you might decide that you would like 20% to be raised through Option A, 30% through Option B, none through option C and the remaining 50% through Option D.

You could of course indicate that you would like all the extra funding to come from one particular option and give that option 100%.

Please consider each of the choices below, and indicate in each case how you would like the extra money for **NHS services** to be raised in the future. Please fill in the percentage under each of the options.

**Scenario 1** What proportion of **future health care funding** should be raised by each option**?**

| | Option A | Option B | Option C | Option D |
|---|---|---|---|---|
| **Who will pay** | Everyone contributes | Everyone contributes | Everyone contributes | Individual decides whether to pay (either through insurance or one-off payments) |
| **Any difference by income** | Those on higher incomes pay at higher rates | Those on higher incomes pay at higher rates | Those on higher incomes pay at higher rates | What you pay does not depend on your income |
| **Any difference by age** | What you pay does not depend on your age | What you pay does not depend on your age | Young people pay less, and older people pay more | What you pay does not depend on your age |
| **Who gets the benefit** | Everyone gets benefit | Everyone gets benefit | Everyone gets benefit | Individual doesn't benefit if hasn't paid |
| **Who receives and controls the fund** | UK National Government (not ringfenced) | UK National Government (ringfenced for health) | UK National Government (not ringfenced) | UK National Government (ringfenced for health) |
| **Total = 100%** | _____ % | _____ % | _____ % | _____ % |

*<3 CHOICE SCENARIOS>*

## Section 4B. Options for Funding Social Care

INTRO SCREEN 1

We would now like to focus on **social care**, by which we mean activities of daily living that the elderly or disabled might need help with. Please do not include health care going forwards.

As we showed you earlier, the current social care expenditure from local authorities and NHS was £15-20 billion in 2015 – 2016 and that this accounts for 15% of the total social care funding.

However, like health care, social care is also under increasing financial pressures. In part this is because the population is on average getting older as we are all living longer; however, costs are also driven up by new technology, new and better treatments becoming available, rising costs and wages.

It is estimated that by 2035, there will be a funding shortfall in the public provision of services of £9.2 billion (equivalent to £140 per person per year). Improving efficiency of these services won't be enough to meet the shortfall. It is also not possible to take money from other government budgets e.g. education, defence etc.

We therefore need to think about how we would raise this additional money to meet the care needs of the population.

---

INTRO SCREEN 2

We would like you to think about a number of different ways that the country could raise additional funds for **social care** only. In thinking about how this funding is raised we would like you to consider the following:

**Who will pay:**

This is about whether everyone pays the same or we expect some groups in society to pay more, either due to their age or how much they earn.

We may also give you options to consider where we could decide that for some aspects of care, it is down to the individual to pay (for example, we could decide that we limit what the state pays for and expect individuals to pay more).

**Who gets the benefits:**

In the cases where the funding is raised through payments that are compulsory across society everyone would have access to all services.

However, if individual top-up payments were introduced, only those paying these would get the services (for example, there will be some services only available to those paying directly for them).

**Who receives and controls the fund:**

There are a range of bodies that could hold the funding obtained, either at different levels of government, within the NHS itself, or independent organisations that take responsibility for ensuring the funding is used appropriately.

We are also interested in whether you think that this should be ringfenced or not, by which we mean whether the organisation holding the funds has discretion to use them for other purposes if necessary.

Please consider each of the four choices, and indicate which option you would choose as your preferred way to find the extra money needed going forwards for publicly funded **social care**.

There are no right or wrong answers, and these choices may require you to make some trade-offs. However, we are interested in understanding your preferences if these were the choices available.

Please remember that we are only considering the funding for **social care** and not health care**.**

**Scenario 1 (Example)**
Which of the following options would you choose to raise the additional funds **for social care services**?

| | Option A | Option B |
|---|---|---|
| **Who will pay** | Everyone contributes | Individual decides whether to pay (either through insurance or one-off payments) |
| **Any difference by income** | People pay broadly in proportion to their income | What you pay does not depend on your income |
| **Any difference by age** | What you pay does not depend on your age | Young people pay less, and older people pay more |
| **Who gets the benefit** | Everyone gets benefit | Individual doesn't benefit if hasn't paid |
| **Who receives and controls the fund** | Charitable organisation | Local Authority (ringfenced for social care) |
| I would choose | ☐ | ☐ |

*<4 CHOICE SCENARIOS>*

In the next few questions, we would again like you to consider a situation where there are a number of different funding options available for **social care** and you could decide how much is raised through each.

For example, of the 100% funding shortfall, you might decide that you would like 20% to be raised through Option A, 30% through Option B, none through option C and the remaining 50% through Option D.

You could of course indicate that you would like all the extra funding to come from one particular option and give that option 100%.

Please consider each of the choices below, and indicate how you would like the extra money needed for **publicly funded social care** to be raised in the future.

Please fill in the percentage under each of the options.

**Scenario1: What proportion of future social care funding should be raised by each option?**

| | Option A | Option B | Option C | Option D |
|---|---|---|---|---|
| **Who will pay** | Everyone contributes | Everyone contributes | Everyone contributes | Individual decides whether to pay (either through insurance or one-off payments) |
| **Any difference by income** | What you pay does not depend on your income | What you pay does not depend on your income | Those on higher incomes pay at higher rates | What you pay does not depend on your income |
| **Any difference by age** | What you pay does not depend on your age | What you pay does not depend on your age | What you pay does not depend on your age | What you pay does not depend on your age |
| **Who gets the benefit** | Everyone gets benefit | Everyone gets benefit | Everyone gets benefit | Individual doesn't benefit if hasn't paid |
| **Who receives and controls the fund** | UK National Government (not ringfenced) | UK National Government (ringfenced for social care) | UK National Government (not ringfenced) | UK National Government (ringfenced for social care) |
| **Total = 100%** | _____ % | _____ % | _____ % | _____ % |

*<3 CHOICE SCENARIOS>*

**Q11**

Did you feel able to make the choices?

1. Yes
2. No.

*(If yes, go to Q13, else Q12)*

**Q12**

Why were you unable to do that?

**Q13**

Did you feel able to allocate the share to the different funding options in a realistic way?

1. Yes
2. No.

*(If yes, go to Q15, else Q14)*

**Q14**

Why were you unable to do that?

## Section 5. About You

**Q15**

Which of the following statements best describes your current employment status?

1. In full-time paid work (or away temporarily) (employee, self-employed, working for your family business)
2. In part-time paid work (or away temporarily) (employee, self-employed, working for your family business)
3. In education, (not paid for by employer) even if on vacation
4. Unemployed and actively looking for a job
5. Unemployed, wanting a job but not actively looking for a job
6. Permanently sick or disabled
7. Retired
8. Doing housework, looking after children or other persons
9. Other, please describe
10. Don't know

**Q16**

Do you or your partner work in the NHS, other health care or social care sectors?

1. Yes
2. No

**Q17**

Which of these levels represents the highest academic qualifications you have?

1. No formal qualifications
2. GCSE (or CSE) / O level / School Certificate
3. 'A' levels or equivalent
4. Professional qualification below degree level
5. Bachelor's degree level qualification or equivalent
6. Higher degree
7. Other, please describe

**Q18**
Do you (or your household) own or rent the accommodation you live in?
1. Own it outright
2. Own it with a mortgage/loan
3. Part own and part rent (shared ownership)
4. Rent it (includes all those who are on Housing Benefit or Local Housing Allowance)
5. Live here rent-free (including rent-free in relative's/friend's property but excluding squatters)
6. Other, please describe
7. Don't know

**Q19**
Could I ask about your current marital status?
1. Married
2. In a civil partnership
3. Separated (still legally married)
4. Separated (still in a civil partnership)
5. Divorced
6. Widowed
7. Formerly in a civil partnership, now legally dissolved
8. Formerly in civil partnership, partner died
9. Single, that is, never married AND never in a civil partnership
10. Prefer not to say

**Q20**
What is your household's combined yearly income (before tax and National Insurance has been taken off)?
1. Up to £9,499
2. £9,500 - £15,499
3. £15,500 - £24,999
4. £25,000 - £34,999
5. £35,000 - £49,999
6. £50,000 - £74,999
7. £75,000+
8. Prefer not to say

Thank you for participating in this interview.

Do you have any other comments or thoughts that you would like to share?

# Appendix D – Technical Details of the Choice Models

In this appendix we provide some additional information to explain the steps undertaken in the design and the analysis of the DCE.[1] It is recognised that not all of the concepts discussed here will be accessible to the lay reader without some technical knowledge of choice modelling and statistical analysis. However, we believe that it is important to report these aspects to provide transparency and allow the quality of the analysis underpinning the work to be demonstrated.

## Design of the DCE

As explained in Section 2.4 of the main report, experimental designs were developed for the DCEs, which ensured that the combinations of attributes and levels in each option presented to survey respondents were realistic. These were blocked so that each respondent saw a diverse subset of scenarios and was asked to consider a range of markedly different funding options.

In practice, the experimental designs for the first choice experiment were developed using Ngene 1.2 (ChoiceMetrics, 2018). A d-efficient design algorithm was used, with zero priors on the coefficients. Within the main effects design, constraints were imposed to ensure realism and avoid combinations that would seem counter-intuitive. These constraints included limiting the combinations where the individual decides whether to pay (either through insurance or one-off payments) to scenarios with no differentiation by income, and to scenarios where the funding was either ringfenced or held by a commercial company/charitable organisation. A design was sought with 36 rows that could be blocked into nine blocks of four rows.

The blocking algorithm within Ngene was utilised, using a search which minimised the total correlation values between the blocking column and all of the attributes. In practice, this ensures that no single respondent sees similar combinations of attribute levels. The final design is shown in Table D1 below.

[1] For further details of the theory underpinning discrete choice experiments, see:
[22] Louviere J, Hensher D, Swait J. *Stated Choice Methods*. Cambridge University Press; 2000.
[23] ChoiceMetrics. *Ngene 1.2 User Manual and Reference Guide*. ChoiceMetrics; 2018. Available at: http://www.choice-metrics.com/NgeneManual120.pdf

**Table D1: Experimental design for DCE1**

| Block | Scenario | Alt A | | | | Alt B | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Univers -ality | Income | Age | Control | Univers -ality | Income | Age | Control |
| 1 | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 0 | 0 |
| 1 | 2 | 0 | 2 | 0 | 6 | 0 | 0 | 1 | 8 |
| 1 | 3 | 0 | 1 | 1 | 5 | 1 | 0 | 0 | 0 |
| 1 | 4 | 1 | 0 | 1 | 7 | 0 | 0 | 0 | 3 |
| 2 | 1 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 2 |
| 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| 2 | 3 | 0 | 1 | 0 | 8 | 1 | 0 | 1 | 5 |
| 2 | 4 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 3 |
| 3 | 1 | 1 | 0 | 0 | 4 | 0 | 2 | 1 | 7 |
| 3 | 2 | 0 | 0 | 0 | 4 | 1 | 0 | 1 | 8 |
| 3 | 3 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 8 |
| 3 | 4 | 0 | 0 | 1 | 3 | 0 | 2 | 0 | 2 |
| 4 | 1 | 0 | 1 | 1 | 7 | 0 | 2 | 0 | 5 |
| 4 | 2 | 0 | 2 | 0 | 7 | 0 | 0 | 1 | 1 |
| 4 | 3 | 0 | 2 | 1 | 2 | 1 | 0 | 0 | 7 |
| 4 | 4 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 5 |
| 5 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 5 | 2 | 0 | 2 | 1 | 8 | 1 | 0 | 1 | 3 |
| 5 | 3 | 0 | 0 | 0 | 7 | 1 | 0 | 1 | 6 |
| 5 | 4 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 2 |
| 6 | 1 | 0 | 1 | 0 | 6 | 0 | 2 | 1 | 1 |
| 6 | 2 | 1 | 0 | 0 | 5 | 0 | 0 | 1 | 4 |
| 6 | 3 | 0 | 2 | 0 | 5 | 0 | 0 | 1 | 6 |
| 6 | 4 | 0 | 2 | 1 | 4 | 0 | 1 | 0 | 8 |
| 7 | 1 | 1 | 0 | 1 | 8 | 0 | 1 | 0 | 1 |
| 7 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 7 |
| 7 | 3 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 6 |
| 7 | 4 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 7 |
| 8 | 1 | 0 | 2 | 0 | 3 | 0 | 0 | 1 | 5 |
| 8 | 2 | 0 | 1 | 0 | 3 | 1 | 0 | 1 | 4 |
| 8 | 3 | 1 | 0 | 0 | 6 | 0 | 1 | 1 | 2 |
| 8 | 4 | 0 | 0 | 1 | 5 | 1 | 0 | 0 | 1 |
| 9 | 1 | 0 | 0 | 0 | 8 | 0 | 2 | 1 | 0 |
| 9 | 2 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 4 |
| 9 | 3 | 1 | 0 | 0 | 3 | 0 | 1 | 1 | 6 |
| 9 | 4 | 0 | 0 | 1 | 6 | 0 | 2 | 0 | 4 |

Note: level descriptions for each attribute are provided in Table 3, in section 2.4 of the main report.

The same underlying design table was used for the healthcare and social care experiments, to avoid introducing any design effects and allow a fair comparison regarding whether there may be differences in preferences. However, each respondent saw a different block for

healthcare and social care, so that they were not being asked to consider identical choices, and to allow exploration of a broader range of funding models with each respondent.

The order in which the attributes were presented was randomised between respondents; for half the sample the attribute regarding who controls the funding being presented first and for the other half this attribute being presented last. This was controlled through the assignment of a random number to a given respondent, and for all four of their choice experiments the attributes were presented in the assigned order. This allowed any possible ordering bias to be controlled for and eliminated.

The correlation matrix for this design is presented in Table D2.

**Table D2: Correlation matrix for DCE1**

| | | Alt A | | | | Alt B | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Universality | Income | Age | Control | Universality | Income | Age | Control |
| Alt A | Universality | 1.00 | | | | | | | |
| | Income | 0.13 | 1.00 | | | | | | |
| | Age | -0.05 | 0.03 | 1.00 | | | | | |
| | Control | 0.00 | 0.00 | -0.15 | 1.00 | | | | |
| Alt B | Universality | -0.40 | -0.04 | 0.10 | 0.13 | 1.00 | | | |
| | Income | -0.13 | -0.33 | 0.03 | -0.10 | 0.13 | 1.00 | | |
| | Age | 0.00 | 0.10 | -0.89 | 0.30 | 0.05 | -0.03 | 1.00 | |
| | Control | 0.00 | 0.27 | -0.11 | -0.23 | 0.00 | 0.00 | 0.17 | 1.00 |

The design for the second choice experiment, which asked respondents to make an allocation of how much they would wish to be raised from four possible funding mechanisms, was specified to explore all possible combinations within a set of constraints:

- alternative A to be VAT, income or wealth tax (not ringfenced) – 3 combinations
- alternative B to be the equivalent tax, but ringfenced
- alternative D always to be out of pocket funding
- alternative C specified to cover all possible comparisons – 5 combinations.

In total, this gave 15 different combinations to be tested. These were divided into five blocks of three, such that each respondent saw one scenario relating to each of the three taxation types, and the mechanism shown on Alternative C differed among their three choices. The final design is shown in Table D3.

**Table D3: Experimental design for DCE2**

| Block | Scenario | Option A | Option B | Option C | Option D |
|---|---|---|---|---|---|
| 1 | 1 | VAT | Ringfenced VAT | Income | Out of pocket |
| 1 | 2 | Income | Ringfenced income | Wealth | Out of pocket |
| 1 | 3 | Wealth | Ringfenced wealth | Mandatory insurance | Out of pocket |
| 2 | 1 | VAT | Ringfenced VAT | Wealth | Out of pocket |
| 2 | 2 | Income | Ringfenced income | Mandatory insurance | Out of pocket |
| 2 | 3 | Wealth | Ringfenced wealth | Ringfenced VAT | Out of pocket |
| 3 | 1 | VAT | Ringfenced VAT | Mandatory insurance | Out of pocket |
| 3 | 2 | Income | Ringfenced income | Ringfenced VAT | Out of pocket |
| 3 | 3 | Wealth | Ringfenced wealth | Ringfenced income | Out of pocket |
| 4 | 1 | VAT | Ringfenced VAT | Ringfenced income | Out of pocket |
| 4 | 2 | Income | Ringfenced income | Ringfenced wealth | Out of pocket |
| 4 | 3 | Wealth | Ringfenced wealth | VAT | Out of pocket |
| 5 | 1 | VAT | Ringfenced VAT | Ringfenced wealth | Out of pocket |
| 5 | 2 | Income | Ringfenced income | VAT | Out of pocket |
| 5 | 3 | Wealth | Ringfenced wealth | Income | Out of pocket |

As with the first experiment, each respondent was assigned different blocks for healthcare and social care in the second experiment to again maximise the range of funding models that they were asked to consider.

## Theory underpinning the discrete choice models[1]

The models are based on the principle that each respondent acts to maximise their utility. In a simple case with two alternatives, A and B, it is possible to specify utility functions U[A] and U[B], for example:

[1] For further details of the theory underpinning discrete choice models see:

[24] Ben-Akiva M, Lerman SR. *Discrete Choice Analysis: Theory and Application to Travel Demand*. The MIT Press; 1985.

[25] Hensher D, Rose J, Greene W. *Applied Choice Analysis: A Primer*. Cambridge University Press; 2005.

[26] Train E. *Discrete Choice Methods with Simulation*. Cambridge University Press; 2003.

$$
\begin{aligned}
U = \quad & \beta_{univ0}.\text{If(Universality = Everyone pays)} \\
& + \beta_{univ1}.\text{If(Universality = Individual decides)} \\
& + \beta_{income0}.\text{If(Income = Does not depend on income)} \\
& + \beta_{income1}.\text{If(Income = In proportion to income)} \\
& + \beta_{income2}.\text{If(Income = Higher incomes pay at higher rates)} \\
& + \beta_{age0}.\text{If(Age = Does not depend on age)} \\
& + \beta_{age1}.\text{If(Age = Young people pay less)} \\
& + \beta_{control0}.\text{If(Control = UK national Government, not ringfenced)} \\
& + \beta_{control1}.\text{If(Control = UK national Government, ringfenced)} \\
& + \beta_{control2}.\text{If(Control = Regional/devolved government, not ringfenced)} \\
& + \beta_{control3}.\text{If(Control = Regional/devolved government, ringfenced)} \\
& + \beta_{control4}.\text{If(Control = Local authority, not ringfenced)} \\
& + \beta_{control5}.\text{If(Control = Local authority, ringfenced)} \\
& + \beta_{control6}.\text{If(Control = NHS body)} \\
& + \beta_{control7}.\text{If(Control = Commercial company)} \\
& + \beta_{control8}.\text{If(Control = Charitable organisation)} \\
& + \varepsilon
\end{aligned}
$$

where the $\beta$ terms are the coefficients (to be estimated).

In order to make the models identifiable, one of the levels for each attribute is set as the base so, for example, the coefficients relating to 0-level of each attribute would be constrained to 0.

In addition to the observed components, the utility function contains an error term $\varepsilon$ that accounts for the unobserved components of utility and which is assumed to be random. In the logit models estimated within this study this is assumed to have a Gumbel distribution.

## Multinomial logit

Within a multinomial logit choice model the probabilities of a respondent choosing one of the funding model combinations, conditional upon the utility they place on the composition of the offered funding models, are:

$$\text{prob[A]} = e^{(V[A])} / (e^{(V[A])} + e^{(V[B])})$$

$$\text{prob[B]} = e^{(V[B])} / (e^{(V[A])} + e^{(V[B])})$$

Where V is the deterministic part of the utility function such that:

$$U = V + \varepsilon$$

As there is an assumption of independence between observations, the likelihood function is given by the product of the model probabilities that each individual chooses the option that they are actually observed to select.

For example, consider a dataset of four observations:

Point 1 – respondent chooses A

Point 2 – respondent chooses B

Point 3 – respondent chooses B

Point 4 – respondent chooses A

The likelihood function is then:

$$L = prob[A]_1 * prob[B]_2 * prob[B]_3 * prob[A]_4$$

where: $prob[A]_1 = prob[A]$ for choice case 1 etc.

The utility functions can be substituted into this likelihood function using the known values of the explanatory variables at each data point. This provides an equation for the likelihood, with a series of coefficients that require estimating. The model estimation seeks the model with the coefficients which best fit the observed choice data, which is achieved by maximising the likelihood function. This optimisation provides the coefficient estimates that best fit the observed data for the functional form of the utility functions being tested.

To develop the simple model, additional covariates can be considered for the different variables in the utility functions – allowing us to model how different respondent characteristics may influence their preferences for different aspects of the funding models.

## Nested logit

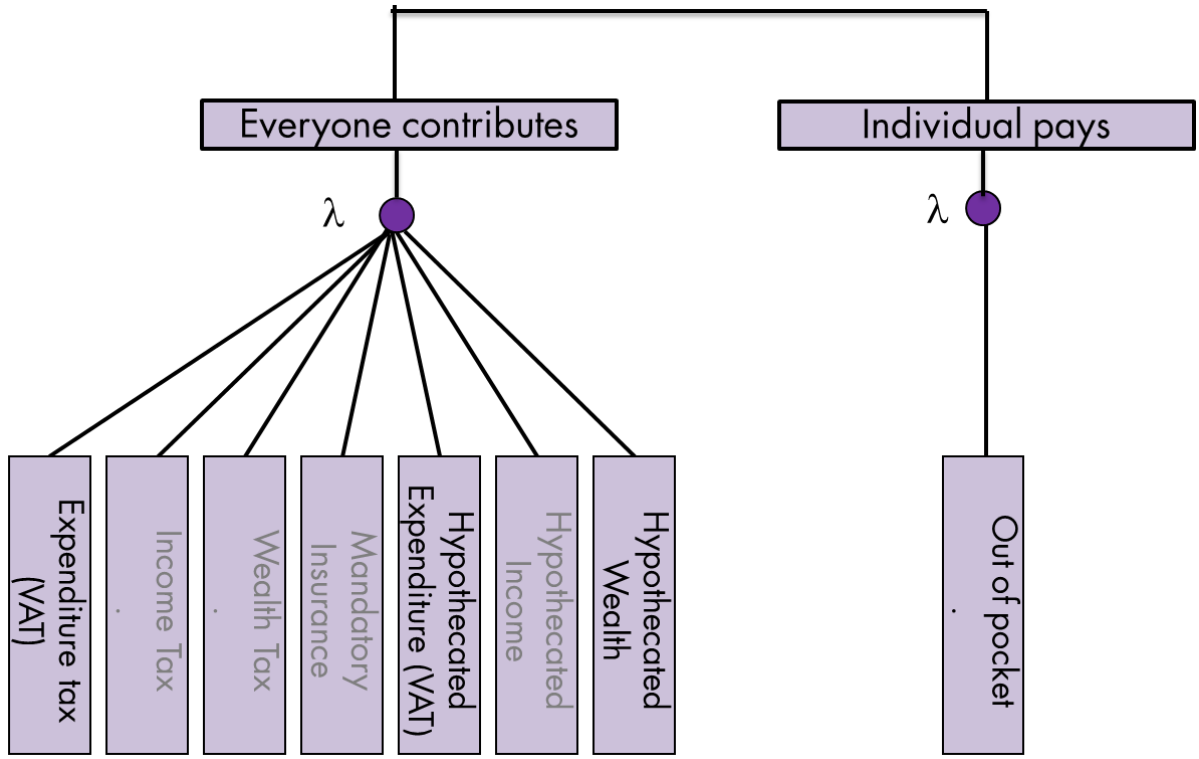
In the choice sets for the second choice experiment, each respondent faced four alternatives (some of which might be considered as 'similar' in a number of different dimensions). It was therefore possible to explore a nested tree structure in the modelling. The multinomial logit model discussed so far exhibits independence from irrelevant alternatives, which implies proportional substitution between alternatives. However, within a nested logit model it is possible to represent different substitution patterns between alternatives, such that:

- for any two alternatives that are in the **same** nest, the ratio of the probabilities is independent of the attributes or existence of all other alternatives; and
- for any two alternatives in **different** nests, the ratio of the probabilities can depend on the attributes of the other alternatives in the two nests.[1]

In the present study, it was possible to examine whether the substitution patterns differed between alternatives that had or did not have ringfencing on the funding, and alternatives that were based on the principles that everyone pays or the individual decides whether to pay.

[1] See: [26]Train E. *Discrete Choice Methods with Simulation*. Cambridge University Press; 2003.

**Figure D1: Nested model structure**




Note: unavailable alternatives for a given individual are shown in grey.

Figure D1 shows a possible nested model structure, in which there is nesting according to whether the alternative is based on a model of everyone contributing or the individual deciding whether to pay. This would allow for representation of the substitution patterns discussed above.

In order for this model to be consistent with utility maximising behaviour for all possible values of the explanatory variables, the structural parameter λ for the nest must take a value between 0 and 1. λ represents the degree of independence in unobserved utility among the alternatives in the nest. If λ takes a value of 1, there is complete independence within a nest and the model collapses to the multinomial logit model. As it approaches 0 the degree of independence within a nest reduces, leading to increasing substitution within each nest.

This nested model can be decomposed into two logits: $P_i = P_{i|B} P_B$

where: $P_{i|B} = \frac{e^{Y_i}}{\sum_{j \in B} e^{Y_j}}$ represents the conditional probability of choosing alternative *i* given that an alternative in nest $B_k$ is chosen

and: $P_B = \frac{e^{\lambda_k \cdot I_k}}{\sum_{l \in K} e^{\lambda_k I_l}}$ is the marginal probability of choosing an alternative in nest $B_k$

with: $I_k = \ln \sum_{j \in B} e^{Y_j}$ the 'logsum' term, which brings information from the lower model to the upper model

From this it is possible to form the likelihood function that allows the estimation of the coefficients with the utilities (the $\beta$'s) and the structural parameter (the $\lambda$).

## Combining datasets

In this study we have data from two different types of experiment (binary choice or allocation across alternatives) and two different contexts (healthcare and social care). While we may believe (and can test) that these have the same underlying preference structures, we should also account for the fact that different data sources can have different error distributions, each distributed independently and extreme value, but with unequal variance.[1]

For example, we may specify the utilities for healthcare and social care such that:

$$U^{HC} = \beta x^{HC} + \varepsilon \qquad \text{and} \qquad U^{SC} = \beta x^{SC} + \nu$$

We can then define a new parameter, $\theta$, which explains the relationship between the variances of the two non-measured components of utility:

$$\theta^2 = \frac{\text{var}(\varepsilon)}{\text{var}(\nu)}$$

If we then multiply one of the utilities by this scale, we have two functions with error terms that have equal variance:

$$U^{HC} = \beta x^{HC} + \varepsilon \qquad \text{and} \qquad \theta U^{SC} = \theta\beta x^{SC} + \theta\nu$$

This model can be estimated using an artificial nesting structure, with dummy composite utilities calculated through the logsum of lower level utilities, giving utilities at the same level of the nest with the same variance.[2]

The value of the scale parameter $\theta_k$ is inversely related to the level of error variance of the data source compared to the reference data source.

- If $\theta_k > 1$, the data source k has less error compared with the reference data source
- If $\theta_k < 1$, the data source k has higher error compared with the reference data source

[1] See [27] Swait J, Louviere J. The role of the scale parameter in the estimation and comparison of multinomial logit models. *J Marketing Res* 1993;30(3):305–14.
[2] See [28] Bradley M, Daly A. Estimation of logit choice models using mixed stated and revealed preference information. *Proceedings of 6th International Conference on Travel Behavior, International Association for Travel Behavior*; Quebec; 1991; 117–33.

## Correcting for the repeated measures nature of the choice data

In discrete choice experiments there are multiple observations from the same individuals, and in the case of this study data from multiple experiments were pooled. As such, the individual observations on which the model is based are not independent and therefore the naive model does not provide true likelihood estimates. It is possible to explicitly model this correlation between observations using panel analysis techniques, and in the case of logit choice models a mixed logit formulation; however, this would necessitate the transfer of the model to a different modelling package, where there are likely to be disadvantages in other aspects of the modelling, for example pooling the data between multiple experiments.

An alternative is to employ the bootstrap technique to provide an improved estimate of the standard errors over those provided by the naive estimation that assumes independence between observations. The bootstrap procedure is a very general resampling procedure for estimating the standard errors in cases where the theory does not provide an exact estimate of the error.[1] This resampling technique also identifies and corrects for other aspects of model misspecification.

The bootstrap procedure includes the following steps:

> Step 1, estimate the model from the full sample, assume runs provide an estimate $b_0$ with the standard deviation of $\hat{\theta}$
>
> Step 2, from the full sample, draw a random subsample of size n with replacement
>
> Step 3, run the model using the resample, and assume an estimate $b_r$ from the subsample with the standard deviation of $\hat{\theta}_i^*$
>
> Step 4, repeat steps 2–3 R times (i = 1 to R), where R is a sufficiently large number (we use 30 in this study) to achieve a stable estimate of the standard errors

The standard deviation of the $\hat{\theta}$ is then:

$$s_{\hat{\theta}} = \sqrt{\frac{1}{R}\sum_{i=1}^{R}(\hat{\theta}_i^* - \bar{\theta}^*)^2}$$

This procedure is used in the present study. The model results presented in this report contain standard errors and parameter t-ratios from models that have been bootstrapped.

## Forecasting

It is important to note that the probabilistic nature of the model is carried through in the application; it would be wrong to assume that the respondent chooses the alternative with

[1] See [29] Efron B. Bootstrap methods: another look at the Jackknife. Ann Statist 1979;7;1–26.

the highest probability. Rather, the model suggests that on some occasions they will choose one alternative and on others another, in proportion to the predicted probabilities.

Therefore, if the choice model is to be used for forecasting the uptake of alternatives, the total market shares or referendum-style voting intentions are calculated using a sample enumeration approach. This entails calculating the probabilities that each of the respondents in the sample will choose each of the alternatives available to them. The probabilities of choosing each of the alternatives are then summed over the sample to provide the aggregate demand for each alternative for the complete sample.

We know that in the sampling process for a survey it is possible that some groups may be over- or under-represented compared with the proportions that are expected in the population from which they have been drawn. In the forecasting process it is possible to apply weights to individuals in the sample as part of the sample enumeration in order to produce forecasts that more closely represent those that would be expected from the population.

## Model development and specification

The models were developed using ALOGIT 4.5 (ALOGIT Software & Analysis Ltd, 2018), a specialist package optimised for the efficient estimation of discrete choice models.

### Testing for differences in preferences between health and social care

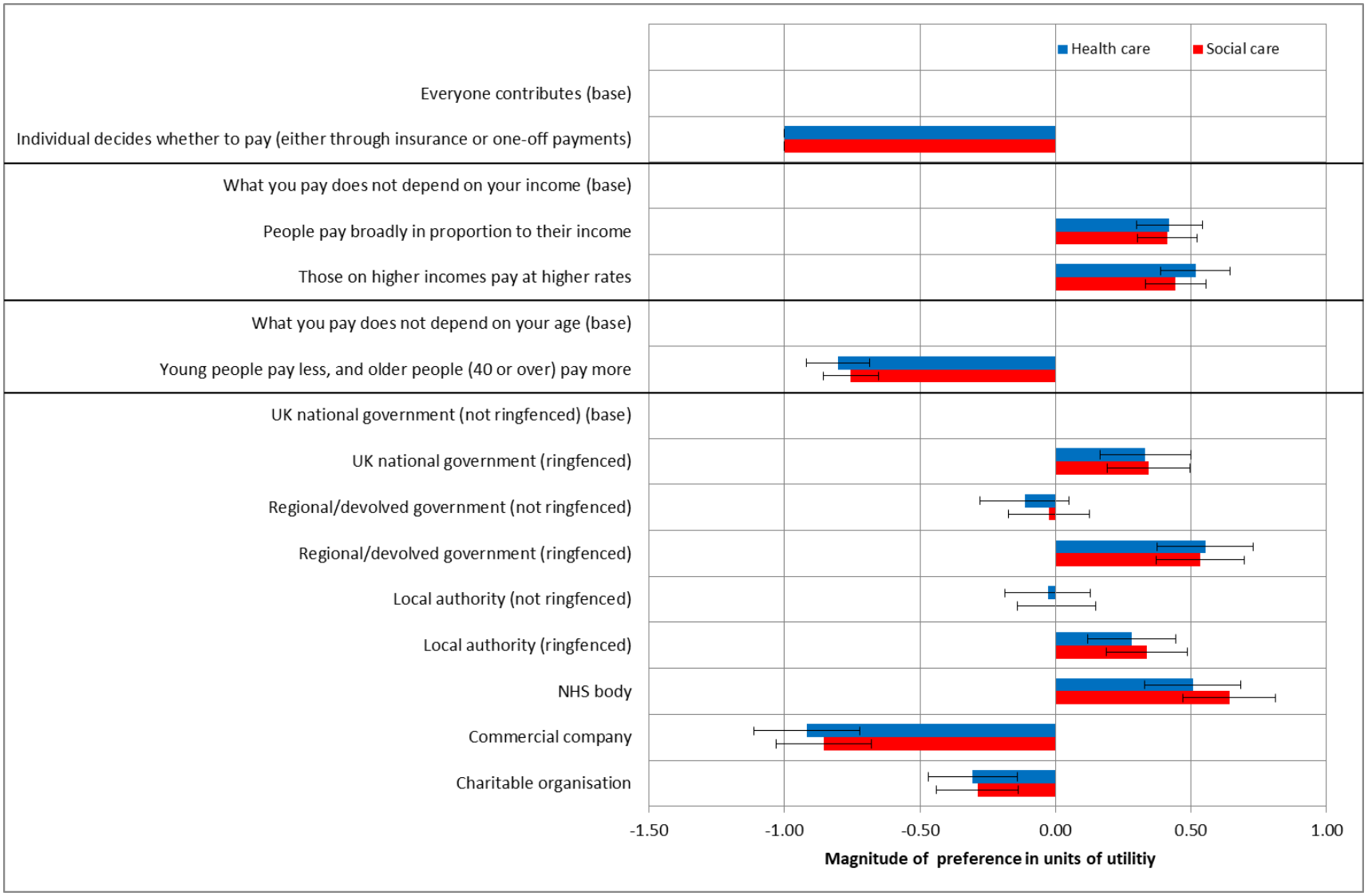
One of the first tests was to ascertain the extent to which the preferences being indicated for different aspects of the funding models differ according to whether the responses are provided in the context of health or social care. The data from the first choice experiment were used to estimate separate models from the responses given in the healthcare and the social care contexts, and then an additional model was estimated which pooled the data from the two contexts (incorporating a scale parameter to allow for differences in error variance). A likelihood ratio test was then used to establish whether the unconstrained model (separate by healthcare and social care) provides a statistically better fit to the data than the constrained model (jointly estimated on both datasets). As can be seen from Table D4, the chi-squared statistic for establishing a significant difference at the 5% level is 21.026. The likelihood ratio test does not reach this value, so the unconstrained (separate) model does not provide a statistically better fit than the constrained (joint) model.

**Table D4: Likelihood ratio test on separate and joint models**

| Model | Log likelihood | D.O.F. | $\chi^2_{0.50}$ |
|---|---|---|---|
| Healthcare | -6688.5 | 13 | |
| Social care | -6772.2 | 13 | |
| | -13460.7 | 26 | |
| Joint | -13463.5 | 14 | |
| **2∆LL** | 5.6 | 12 | 21.026 |

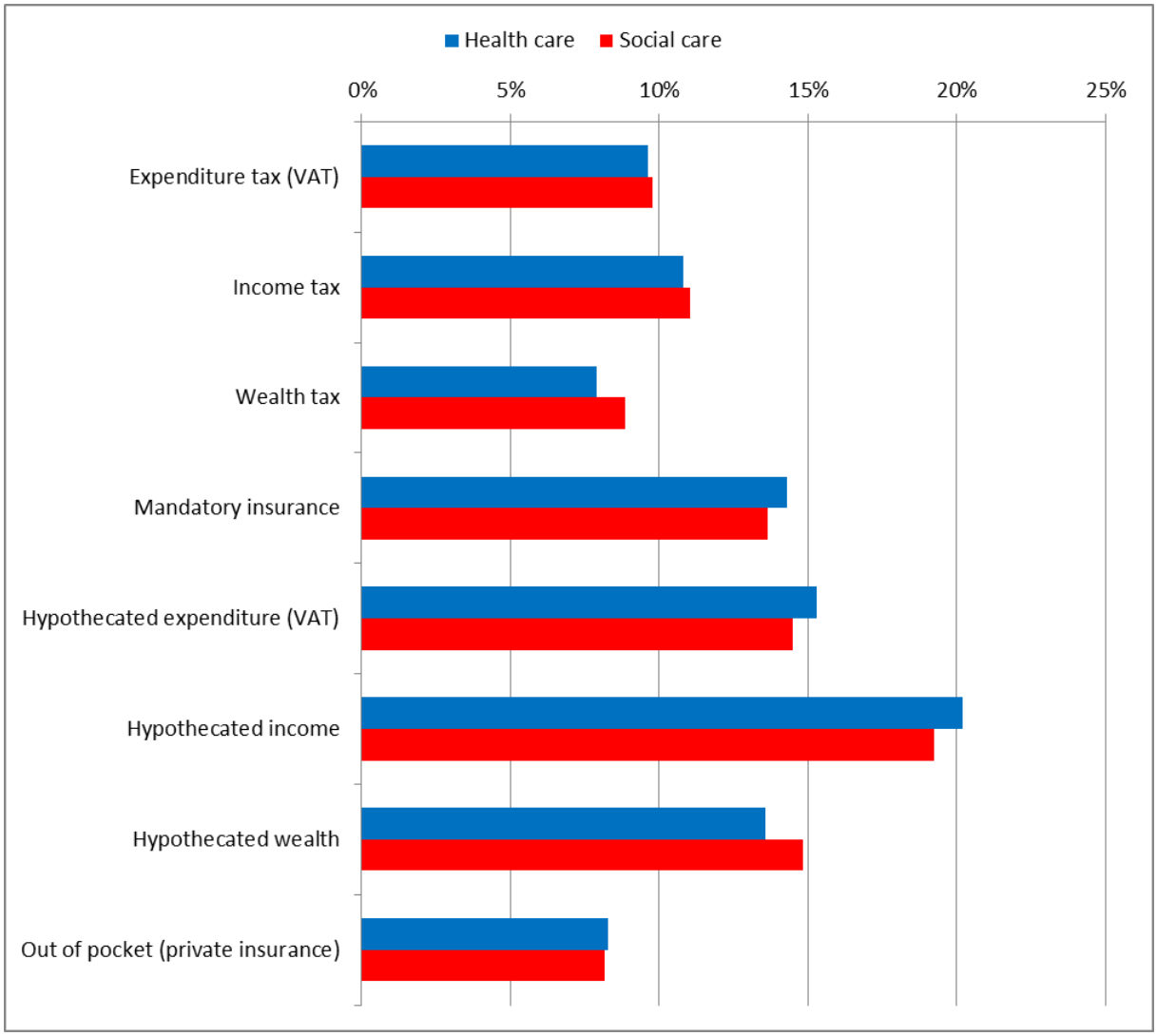
This can be further confirmed from plotting the results from the two separate models once normalised to account for potential differences in model scale by dividing through by the value placed on 'individual decides whether to pay'. Figure D2 shows the normalised coefficients from the two models, along with the 95% confidence intervals. As can be seen, none of the coefficients would be deemed to be significantly different between the two models, reinforcing and visually confirming the outcome from the likelihood ratio test.

## Figure D2: Comparison of preferences from separate NHS and social care models



The responses to the second choice experiment were also examined to see whether there were marked differences between the funding models that were selected by respondents from the two contexts. As can be seen from Figure D3, the responses were highly comparable, again suggesting that the most appropriate approach to modelling the data was to pool the responses from the two contexts and then test for areas of difference on individual attributes.

**Figure D3: Comparison of alternatives chosen in the second experiment**




## Testing for differences between countries

The other important hypothesis which required testing prior to moving into a systematic approach to developing the models was whether the preferences observed differed by country. This was again tested by running separate models by country and undertaking a likelihood ratio test to ascertain whether treating the data separately was statistically better than pooling the data. These tests were undertaken separately for the data collected in the NHS care and the social care context, recognising that the extent to which the services were funded and configured was also different by country and context.

Table D5 shows the test run on the NHS care data. The constrained model is a model pooling data from across all four countries with scales to allow for differences in error variance. From this we can observe that the chi-squared statistic for establishing a significant difference at the 5% level is 50.998. The likelihood ratio test does not reach this value, so the unconstrained (separate) model does not provide a statistically better fit than the constrained (joint) model.

**Table D5: Likelihood ratio test on NHScare models split by country**

| Model | Log likelihood | D.O.F. | $\chi^2_{0.50}$ |
|---|---|---|---|
| England | -2964.5 | 13 | |
| Scotland | -1478.1 | 13 | |
| Wales | -1266.9 | 13 | |
| Northern Ireland | -952.5 | 13 | |
| | -6662.0 | 52 | |
| Joint | -6682.9 | 16 | |
| **2ΔLL** | 41.8 | 36 | 50.998 |

Similarly, Table D6 shows the test run on the social care data. From this we can observe that the chi-squared statistic for establishing a significant difference at the 5% level is 50.998. The likelihood ratio test does not reach this value, so again the unconstrained (separate) model does not provide a statistically better fit than the constrained (joint) model.

**Table D6: Likelihood ratio test on social care models split by country**

| Model | Log likelihood | D.O.F. | $\chi^2_{0.50}$ |
|---|---|---|---|
| England | -2948.4 | 13 | |
| Scotland | -1542.4 | 13 | |
| Wales | -1288.1 | 13 | |
| Northern Ireland | -972.8 | 13 | |
| | -6751.7 | 52 | |
| Joint | -6771.8 | 16 | |
| **2ΔLL** | 40.2 | 36 | 50.998 |

On the basis of these tests, the data were pooled across both NHS and social care and across countries.

## Testing for substitution patterns between alternatives

Different nesting structures were tested to establish whether there was evidence that the alternatives in the model were not independent and that some funding alternatives may

compete more closely with each other than others. A range of different tests were undertaken to identify the nesting structure that provided the best fit to the data. These revealed that nesting on the basis of whether the control of the funding was ringfenced was not consistent with economic theory, but that nesting on the basis of whether the alternatives were based on collectivism rather than individualism was consistent. The impact of this nesting was tested both at this stage of the model development, and at the end to confirm that the nesting still provided an improvement in the model fit once all other influences on preferences had been taken into account.

## Testing for differences between subgroups

The utility functions were then developed, testing for and taking into account any differences in preferences that could be observed between groups of respondents. The current model at each stage was used to forecast the predicted choices of the respondents in the sample, and these were compared with the observed choices across a wide range of background characteristics to identify whether certain subgroups appeared to be responding in ways that the model was not capturing. Additional covariates were introduced to the model to address areas of potential under-specification, and the statistical significance of these (through individual coefficient t-ratios) and their impact on the model fit (through likelihood ratio tests) were examined and used to inform whether the additional terms provided a better fit to the data.

The background characteristics that were systematically examined included:

- socioeconomic factors
    - country
    - age
    - gender
    - household income
    - employment status
    - education level
    - tenure
    - marital status
- current health and experience of services
    - current health status
    - experience with health care
    - experience with social care
    - knowledge of how health care and social care are funded
- aspects of the experiment design:
    - whether data related to health or social care funding
    - order in which the choice experiments had been presented
    - order in which the attributes had been presented.

This comprehensive set of tests has led to a final model specification that simultaneously takes into account any differences between respondents and reveals how preferences for different aspects of future funding mechanisms influence the public acceptability of those mechanisms.

## Final model specification

This section presents the model results obtained for the best model specification tested. The detailed model coefficients are presented.

In reporting the models, we present a number of model fit statistics in Table D7.

**Table D7: Model fit statistics**

| Statistic | Definition |
|---|---|
| Observations | The number of observations included in the model estimation. |
| Final log (L) | This indicates the value of the log-likelihood at convergence. The log-likelihood is defined as the sum of the log of the probabilities of the chosen alternatives, and is the function that is maximised in model estimation. The value of log-likelihood for a single model has no obvious meaning; however, comparing the log-likelihood of two models estimated on the same data allows the statistical significance of new model coefficients to be assessed properly through the likelihood ratio test. |
| D.O.F. | Degrees of freedom, that is the number of coefficients estimated in this model. Note that if a coefficient is fixed to 0 then it is not a degree of freedom. |
| $Rho^2(0)$ | The rho-squared measure compares the log-likelihood (LL(final)) to the log-likelihood of a model with all coefficients restricted to 0 (LL(0)):<br><br>$Rho^2(0) = 1 – LL(final)/LL(0)$<br><br>A higher value indicates a better fitting model. |
| $Rho^2(c)$ | If we compare the log-likelihood (LL(final)) value obtained with the log-likelihood of a model with only constants (LL(c)), we get:<br><br>$Rho^2(c)$: $1 – LL(final)/LL(c)$<br><br>Again, a higher value indicates a better fitting model. |

In interpreting the coefficient values (Table D8) the following points should be considered.

- A positive coefficient means that the variable level or constant has a positive impact of utility and so reflects a higher probability of choosing the alternatives to which it is applied.

- A negative coefficient means that the variable level or constant has a negative impact on utility and so reflects a lower probability of choosing the alternative to which it is applied.
- The constants in each model reflect preferences for the alternatives to which they are applied; a positive value for a constant indicates that the respondent is more likely to choose that alternative, and a negative value indicates that the respondent is less likely to choose that alternative.

The value shown after each coefficient estimate is the t-ratio. This defines the (statistical) significance of the coefficient estimate; regardless of the sign, the larger the t-ratio, the more significant the estimate.

It is noted that the model results presented in this section reflect the model results after applying the bootstrap procedure (for more details, see the earlier section of this Appendix headed 'Correcting for repeated measures nature of the choice data'), so the t-ratios take account of the fact that multiple (and non-independent) responses have been collected from each respondent.

A coefficient with a t-ratio greater than +/-1.960 is estimated to be significantly different from 0 at the 95% confidence level. A t-ratio of +/-1.645 is significantly different from 0 at the 90% confidence interval. We generally seek to estimate coefficients that exceed the 95% confidence interval, although we have retained some coefficients at the 90% confidence interval where these reveal meaningful trends in the context of other coefficients.

**Table D8: Final choice model (post bootstrap)**

| Attribute | Description | Coefficient | t-ratio |
|---|---|---|---|
| Universality | Everyone contributes | 0.0000 | n/a |
| | Individual decides whether to pay (either through insurance or one-off payments) | -0.7245 | -16.75 |
| | Those from Scotland | -0.1095 | -2.57 |
| | Those whose age is 44–54 | -0.2087 | -5.49 |
| | Those older than 55 | -0.4022 | -10.67 |
| | Those with income lower than £15k or respondents did not report their income | 0.1203 | 4.52 |
| | Those with income higher than 75k | 0.0843 | 1.68 |
| | Those in full-time employment | 0.0890 | 2.95 |
| | Those permanently sick or disabled | -0.1515 | -2.54 |
| | Those educated to GCSE or below | 0.1674 | 4.93 |
| | Those owning their house outright or with mortgage | -0.2125 | -7.85 |
| | Those reported health status is good or excellent | 0.1609 | 6.24 |
| Income | What you pay does not depend on your income | 0.0000 | n/a |
| | People pay broadly in proportion to their income | 0.3025 | 15.27 |
| | Those on higher incomes pay at higher rates | 0.3184 | 16.95 |
| | Those whose age is greater than 45 | 0.1030 | 3.54 |
| | Those with income greater than £75k | -0.1507 | -3.81 |
| | Thse with a higher degree | 0.1097 | 2.73 |
| | Those who had visited A&E 1–4 times last year | -0.0778 | -3.64 |
| Age | What you pay does not depend on your age | 0.0000 | n/a |

| | | | |
|---|---|---|---|
| | Young people pay less, and older people (40 or over) pay more | -0.5796 | -23.68 |
| | Those who are male | 0.1289 | 5.10 |
| | Those whose age is 18–24 | 0.4401 | 7.66 |
| | Those whose age is 25–34 | 0.1777 | 5.43 |
| | Those older than 55 | -0.2520 | -7.91 |
| | Those who did not report their income | 0.1594 | 3.10 |
| | Those with a higher degree | 0.1126 | 2.42 |
| | Those who are widowed or whose partner has died | 0.3422 | 6.03 |
| | Those who had visited their GP 5 or more times in the past year | -0.0789 | -2.55 |
| | Those who had visited hospitals 5 or more times in the past year | -0.2300 | -3.18 |
| | Those who answered all the funding questions incorrectly | -0.0828 | -3.10 |
| Controls the fund | UK national Government (not ringfenced) | 0.0000 | n/a |
| | UK national Government (ringfenced for health or social care) | 0.3960 | 23.45 |
| | Those older than 55 | 0.2236 | 13.66 |
| | Regional/devolved government (not ringfenced) | 0.0729 | 2.12 |
| | Regional/devolved government (ringfenced for health or social care) | 0.5146 | 15.18 |
| | Local authority (not ringfenced) | 0.0997 | 3.85 |
| | Local authority (ringfenced for health or social care) | 0.3386 | 7.17 |
| | Those who are retired | 0.1757 | 2.20 |
| | Those who rent their house | -0.1298 | -1.92 |
| | NHS body | 0.5645 | 15.97 |
| | Those who had visited hospital 5 or more times in the past year | -0.1862 | -1.74 |
| | Commercial company | -0.5648 | -9.14 |
| | Those younger than 45 | 0.3264 | 5.24 |
| | Those educated to professional certificate or degree or higher | -0.2308 | -4.38 |
| | Those who have a mortgage | -0.1854 | -3.12 |
| | Those who have provided care in the past year | 0.1674 | 2.61 |
| | Charitable organisation | -0.3034 | -4.93 |
| | Those younger than 45 | 0.3734 | 4.44 |
| | Those who did not report their income | -0.2345 | -2.18 |
| | Those in part-time employment | 0.2229 | 2.23 |
| Model parameters | Scale parameter for Health Care SP1 (reference) | 1.0000 | n/a |
| | Scale parameter for Social Care SP1 | 0.9301 | 2.31 |
| | Scale parameter for Health Care SP2 | 0.9945 | 0.19 |
| | Scale parameter for Social Care SP2 | 0.9479 | 1.85 |
| | Scale parameter for England (reference) | 1.0000 | n/a |
| | Scale parameter for Scotland | 1.1283 | -3.58 |
| | Scale parameter for Wales | 1.1247 | -2.54 |
| | Scale parameter for Northern Ireland | 1.0386 | -0.77 |
| Structure parameter | Nesting on ‘everyone contributes’ and ‘individual decides whether to pay’ | 0.8643 | 6.43 |
| **Summary statistics** | | | |
| | Observations | | 38584 |
| | Final log-likelihood | | -35280.4 |
| | D.O.F. | | 54 |
| | $Rho^2(0)$ | | 0.077 |

| | |
|---|---|
| $Rho^2(c)$ | 0.058 |