

# Consumer research for Cost-Benefit Analysis of Digital Radio Switch over

A supplementary report to DCMS

Prepared by



In association with YouGov

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Head Office: 71-75 Shelton Street, Covent Garden, London, WC2H 9JQ, United Kingdom.

w: [www.londecon.co.uk](http://www.londecon.co.uk) e: [info@londecon.co.uk](mailto:info@londecon.co.uk)

t: +44 (0)20 7866 8185 f: +44 (0)20 7866 8186

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## Glossary

### Terminology abbreviations

CBA	Cost Benefit Analysis
DCMS	Department for Culture, Media and Sport
WTP	Willingness-to-pay



## 1 Introduction

The Department for Culture, Media and Sport (DCMS) is currently undertaking a cost-benefit analysis to inform digital radio switchover policy. This report presents the results of consumer research undertaken by London Economics and YouGov during February and March 2012 in order to inform the DCMS cost-benefit analysis. The rest of this section sets out the aims of the project and the approach taken. The next two sections present the results of the fieldwork, and the final section draws conclusions.

### 1.1 Aims of the project

In early 2011, London Economics and YouGov conducted consumer research for DCMS in order to estimate consumers' willingness-to-pay (WTP) for the attributes of digital radio using a choice experiment methodology.<sup>1</sup> The aim of the current project is to provide a greater understanding of the WTP results from the 2011 study in order to clarify how these results should be interpreted and applied in the DCMS cost-benefit analysis.

In particular, the project needs to provide clarity regarding how respondents interpreted the original choice experiment with respect to four key areas:

- a) Whether the cost they would incur was one-off or annual;
- b) Whether the attributes of digital radio would be available in-home, in-car or both;
- c) Whether the attributes of digital radio would be available on just one radio set, or on all radio sets owned by the household;
- d) Whether they should be responding as an individual or on behalf of their household.

### 1.2 Approach

The approach used to address these requirements comprises of two elements:

- 1) A new sample of participants undertook exactly the same choice experiment as that conducted in early 2011, then answered a number of follow-up questions to explore how they interpreted the experiment in terms of the four key areas a) to d) above.
- 2) Twenty participants completed the same experiment and then, immediately afterwards, participated in telephone interviews to explore the interpretation of the experiment.

The first part provides quantitative data on the interpretation of the experiment for a sample of over 200 respondents, whereas the second part provides qualitative, in-depth evidence for 20 respondents. The two parts are discussed in turn below.

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<sup>1</sup> The report from the 2011 research is available on the DCMS website: <http://www.culture.gov.uk/publications/8136.aspx>.

### 1.2.1 Online follow-up questions

A new sample of 221 participants undertook the same choice experiment as that conducted in early 2011. The wording of the experiment, including the introduction and the attribute descriptions, were unchanged from the earlier experiment. Likewise, the range of prices used was also unchanged (the wording can be seen in Annex 2).

In the original experiment, each respondent made eight choices. However, for the follow-up the number of choices per respondent was limited to four, since the purpose is to investigate how the respondents interpret the choice questions, rather than to re-estimate the WTP for each attribute.

Whereas eight choices per respondent was more appropriate before in order to create a larger dataset for WTP estimation, four choices per respondent is sufficient in order to allow follow-up questions to examine the interpretation.

After completing the choice experiment the respondents answered a number of open and closed follow-up questions in order to explore how they interpreted the experiment in terms of key areas a) to d) above. The follow-up questions can be seen in Annex 1.

The key advantage of this part of the study is that it provides explicit, quantitative information on how participants interpreted the choice experiment questions, based on a reasonable-sized sample of respondents that has been matched to the 2011 sample in terms of key demographic characteristics (see the sample characteristics below). Hence, the results from this element of the fieldwork can assist DCMS directly with inputs to their CBA model.

#### ***Online follow-up sample characteristics***

The online follow-up sample was drawn from the YouGov panel of 360,000 UK adults, and the demographic composition was matched to those who took part in the choice experiment in early 2011.

The demographic characteristics of the online follow-up sample and the sample from 2011 are presented in Table 1. This comparison shows that the new sample is very closely matched to the original choice experiment sample.

**Table 1: Online follow-up sample characteristics**

	Follow-up sample	Sample from 2011
<b>Gender:</b>		
Female	54%	51%
Male	46%	49%
<b>Age group:</b>		
18-29	19%	20%
30-39	17%	17%
40-49	17%	19%
50-59	16%	15%
60-69	13%	13%
70+	19%	15%
<b>Region:</b>		
East Midlands	9%	7%
East of England	12%	9%
London	12%	12%
North East	4%	4%
North West	11%	10%
Northern Ireland	2%	3%
Scotland	5%	8%
South East	16%	15%
South West	10%	10%
Wales	5%	5%
West Midlands	9%	8%
Yorkshire and the Humber	7%	9%
<b>Socio-economic grade:</b>		
AB	22%	22%
C1	31%	30%
C2	16%	15%
DE	30%	33%

*Source: Follow-up choice experiment/original choice experiment.*

### 1.2.2 Telephone depth interviews

An additional set of 20 participants completed the choice experiment and were interviewed by telephone immediately afterwards. The interviews lasted around 15 minutes and used a semi-structured topic guide to guide the discussion. The focus of the interviews was their interpretation of the choice experiment from the angle of the four key areas detailed previously.

By interviewing a number of consumers in depth we were able to explore their interpretation of the choices in an open and discursive manner. This provided them with the chance to state their interpretation spontaneously and, where necessary, through prompting with the interviewer acting as a neutral guide through the issues.

**Sample characteristics of the Telephone interviewees**

The 20 interviewees were sampled in order to provide a balance of men and women respondents, those living in both urban and rural areas, and cover a range of age groups. In addition, it was ensured that the sample included both digital radio owners and non-owners (Table 2).

**Table 2: Telephone interview sample characteristics**

<b>Gender:</b>	
Men	7
Women	11
<b>Locality:</b>	
Urban	12
Rural	6
<b>Age band:</b>	
18-29	4
30-39	3
40-49	3
50-59	3
60-69	4
70+	1
<b>Digital radio ownership:</b>	
Owns a digital radio	9
Does not own a digital radio	9

## 2 Results from the online follow-up questions

In this section we present the results of the online follow-up questions. The four sub-sections below examine the following:

- the interpretation of the price attribute,
- where respondents understood the attributes of digital radio would be available,
- the number of radio-sets on which the attributes of digital radio would be available, and
- where respondents answered based on their own preferences only, or those of their entire household.

### 2.1 Interpretation of the price attribute

This section aims to identify whether participants in the choice experiment interpreted the price attribute as a one-off or an annual cost. Two follow-up questions addressed this issue:

- When you saw the price displayed at the bottom of each option, what did you understand that price to represent?
- When you made this choice [referring to a specific choice made by the respondent], did you think of the price as being a one-off cost, an annual charge, or something else?

The first question was an open answer question, and referred to the choices that the respondents had just made in general.

The second question prompted respondents with possible answers including: a) 'one-off cost (like buying a radio)', or b) 'an annual charge (like a licence or subscription fee)'. Respondents also had the option to reply 'something else' (in which case they were asked to specify what they had in mind) or 'don't know'. This question was repeated for every choice made by each respondent.

#### ***Responses to the open answer question***

The answers given to the open question by 48 respondents (i.e. 22%) clearly indicate that they interpreted the price as a one-off cost. This includes any respondents who reported that they interpreted the price to be:

- the price or cost of "the", "that" or "a" radio;
- the price or cost of the "set", "receiver", "hardware" or "item"; or
- a one-off-payment

Conversely, 29 respondents (i.e. 13%) gave answers to the open question which clearly indicate that they interpreted the price as a recurring cost. This includes any respondents who reported that they interpreted the price to be:

- a "yearly", "monthly", "ongoing" or "licence" fee (or price/cost);
- a subscription; or
- the cost of a "radio licence"

A further 20 respondents (i.e. 9%) reported that they interpreted the price as the price or cost of the “service”, “package” or “plan”. These responses also *suggest* that the respondents interpreted the price as a recurring cost since, in the context of media products, the words *service*, *package* and *plan* usually refer to something which is paid for on a recurring basis (such as a TV licence).

### Responses to the closed (choice specific) question

First it should be noted that 83% of respondents interpreted the price attribute in the same way for all the choices that they made (see Table 3), suggesting that for most respondents the non-price attributes included in the choice did not influence the way that they interpreted the price attribute.<sup>2</sup> Among those who answered consistently, the majority (or 47% of the total) interpreted the price as a one-off cost.

Overall (i.e. over all the choices made), in most cases the price was interpreted as a one-off cost (54%), whilst for around a third of cases it was interpreted as an annual charge (34%).

**Table 3: Price attribute interpretation**

Price interpretation	Share of choices where price interpretation was ‘consistent’ over choices	Share of choices where price interpretation was ‘inconsistent’ over choices	Overall (i.e. over all choices made)
An annual charge	26%	7%	<b>34%</b>
One-off cost	47%	7%	<b>54%</b>
Something else	2%	1%	<b>2%</b>
Don’t know	9%	1%	<b>10%</b>
<b>Total</b>	<b>83%</b>	<b>17%</b>	<b>100%</b>

Note: Respondents are defined as ‘consistent’ if they interpreted the price attribute in the same way across all choices that they made.

Source: *Online survey choice experiment follow-up questions*.

Secondly, this question also allows us to examine whether the interpretation of the price attribute varies according to the non-price attributes included in the choice (see Annex 2 for details of the choice experiment set-up).

Table 4 presents the shares who thought that the price referred to an annual charge, a one-off cost or something else, broken-down by the digital attribute tested. The interpretation is relatively consistent across the digital attributes. In every case the majority of respondents interpreted the price as a one-off cost.

<sup>2</sup> Among those who provided a clear response to the open answer question this percentage rises to 91%.

**Table 4: Price attribute interpretation by digital attribute tested**

Price interpretation	D1: Tuning	D2: Display	D3: Pause/Rewind	D4: No. of Stations	D5: Speciality Stations	D6: Sound	Overall
An annual charge	30%	30%	37%	32%	37%	35%	<b>34%</b>
One-off cost	56%	60%	53%	53%	51%	52%	<b>54%</b>
Something else	2%	1%	1%	5%	2%	4%	<b>2%</b>
Don't know	12%	9%	9%	10%	10%	10%	<b>10%</b>
Total	100%	100%	100%	100%	100%	100%	<b>100%</b>

Note: Shares of choices.

Source: *Online survey choice experiment follow-up questions.*

## 2.2 Where the attributes of digital radio would be available

This section aims to identify whether participants in the choice experiment understood that the attributes of digital radio would be available in-home, in-car or both. One follow-up question addressed this issue:

- Thinking about the choices you made, to what extent were you thinking about the radio listening you do at home or in the car?

This question was answered using a scale from 1 ('at home') to 9 ('in car'), where the mid-point (i.e. 5) meant 'both equally'.

The shares of respondents who gave each rating (from 1 to 9) are presented in Table 5 and Figure 1. The most common interpretation was that respondents considered the choices to be in the context of listening at home (i.e. 33% replied '1 - At Home'), followed by both at home and in the car equally, and then in the car (see Table 5 and Figure 1).

Around half understood the choices to be in the context of listening at home 'more' than they understood them to be in the context of listening in the car (meaning those who answered between 1 and 4, i.e. 33% + 5% + 6% + 5% = 49%).

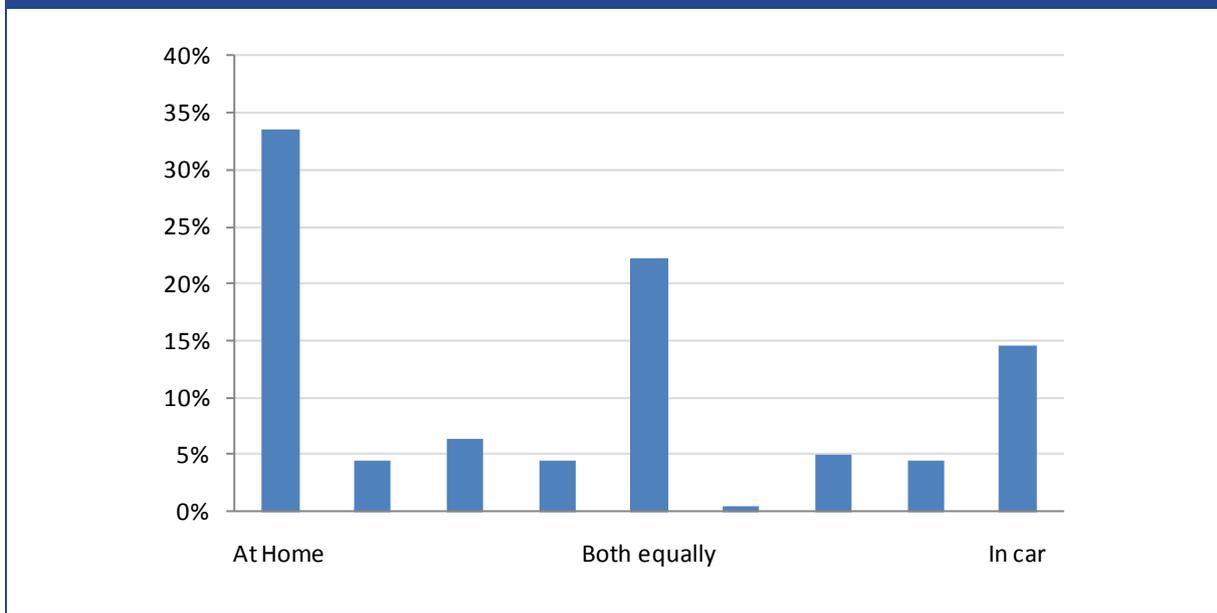
**Table 5: Where the attributes of digital radio would be available**

Interpretation	Share of respondents
1 - At Home	33%
2	5%
3	6%
4	5%
5 - Both equally	22%
6	0%
7	5%
8	5%
9 - In car	14%
Don't know	5%

Note: Shares of all respondents.

Source: Online survey choice experiment follow-up questions.

**Figure 1: Where the attributes of digital radio would be available**



Note: 5% reported 'don't know'.

Source: Online survey choice experiment follow-up questions.

## 2.3 Number of radio-sets on which the attributes of digital radio would be available

This section aims to identify whether participants in the choice experiment understood that the attributes of digital radio would be available on just one radio set or on all radio sets owned by the household. One follow-up question addressed this issue:

- Thinking about the choices you made, did you think that the attributes of each option would apply to one radio set or all radio sets in your home/car?

The responses show a relatively even split between those who understood that the attributes would be available on just one radio set and those who understood that they would be available on all radio sets owned by the household (Table 6).

Overall, a slightly higher share interpreted the choices as referring to all sets owned by the household (44% vs. 41%).

In addition, the split is not greatly affected by whether an individual owns a DAB set, has digital radio in their car, or even listens to radio in the car.

**Table 6: Number of radio-sets on which the attributes of digital radio would be available**

Interpretation	Overall	DAB set owner:		In car digital radio:		Listen in car:	
		No	Yes	No	Yes	No	Yes
All sets in home/car	<b>44%</b>	44%	44%	42%	55%	39%	46%
One radio set	<b>41%</b>	38%	43%	42%	33%	43%	40%
Something else	<b>1%</b>	0%	2%	1%	0%	0%	1%
Don't know	<b>14%</b>	19%	11%	15%	12%	19%	13%
Total	<b>100%</b>	100%	100%	100%	100%	100%	100%

Note: Shares of respondents.

Source: Online survey choice experiment follow-up questions.

## 2.4 Individual vs. household responses

This section aims to identify whether participants in the choice experiment responded as an individual or on behalf of their household. One follow-up question addressed this issue:

- Thinking about the choices you made, were you answering based on your own preferences or those of everyone in the household, including yourself?

The results show that overall a large majority of participants (76%) responded based on their own preferences only (Table 7). Intuitively, this is what we would expect given the wording of the choice experiment: the introduction refers to the “cost to you” and the attributes consistently

refer to “you” (rather than “you and your household”).<sup>3</sup> This corroborates the evidence from the fieldwork that most respondents are replying as individuals.

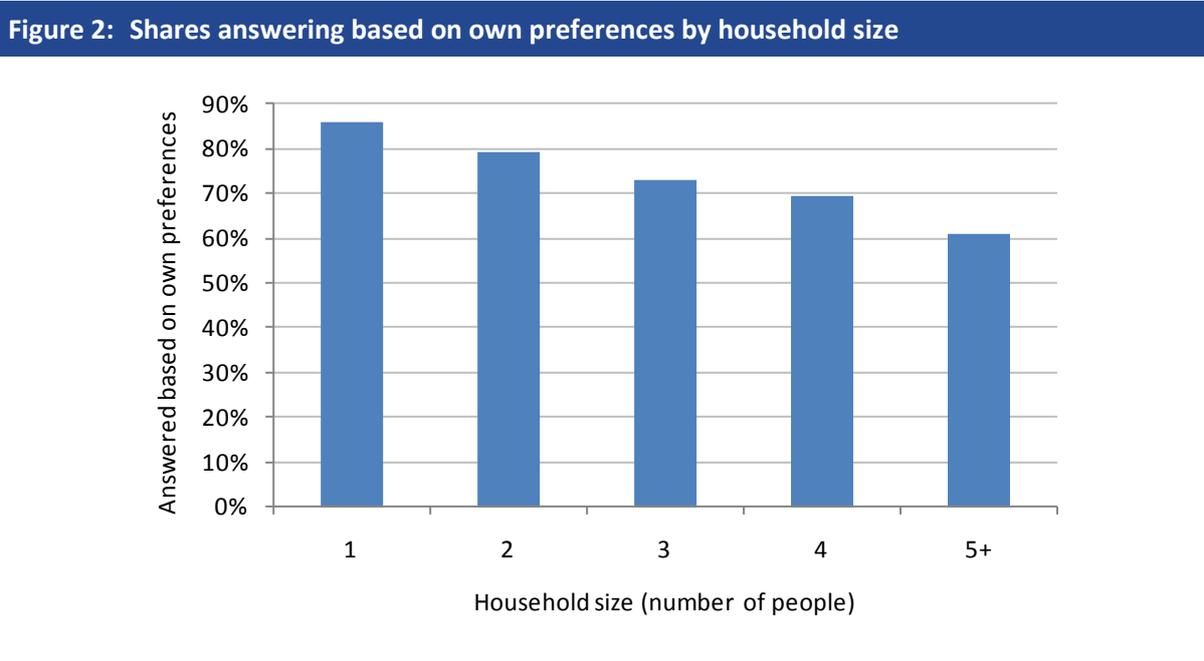
However, the breakdown by household size shows that the share basing their decision on their own preferences only decreases as household size increases (see Figure 2), as might be expected.

**Table 7: Shares answering based on own preferences or those of whole household**

Interpretation	Overall	Household size (number of people):				
		1	2	3	4	5+
Respondent’s preferences only	<b>76%</b>	86%	79%	73%	69%	61%
Preferences of everyone in household	<b>20%</b>	9%	21%	22%	22%	28%
Something else	<b>0%</b>	0%	0%	2%	0%	0%
Don’t know	<b>4%</b>	6%	0%	2%	8%	11%
Total	<b>100%</b>	100%	100%	100%	100%	100%

Note: Shares of respondents. Note that for some household size sub-groups the number of observations is quite small: the smallest is the 5+ sub-group for which there are 18 respondents.

Source: Online survey choice experiment follow-up questions.



Note: Shares of respondents. Note that for some household size sub-groups the number of observations is quite small: the smallest is the 5+ sub-group for which there are 18 respondents.

Source: Online survey choice experiment follow-up questions.

<sup>3</sup> For example, “you have a choice of 20 national stations”, “you can listen live and pause/rewind”, “you have clear sound”, etc.

## 3 Findings from the depth interviews

### 3.1 Interpretation of the price attribute

This section aims to identify whether participants in the choice experiment interpreted the price attribute as a one-off or an annual cost.

#### **Spontaneous approach**

To investigate this we first used an open-ended and spontaneous approach which has the advantage of not leading the participants to think in terms of either on-off costs or recurring charges, but allowing them to reflect their interpretation back to us. The following question was used:

- First of all, when you saw the costs of each of the options – what did you understand the cost referred to?

Based on their answers to this first question, the participants can roughly be divided into three categories:

**Category 1.** Those who interpreted the price attribute as a one-off cost:

*'I first thought it represented like, a monthly cost. Then I reread it and I thought, no, it's the cost of actually buying the physical radio equipment.'* [Female, Carol]

*'I actually assumed that it was referring to a new digital radio set, or something. So, the purchase price.'* [Female, Heather]

**Category 2.** Those who interpreted the price attribute as a subscription fee that would have to be paid on an annual basis:

*'I thought possibly that somebody was trying to find out how much we were willing to pay for a radio licence.'* [Female, Kate]

*'I assumed it was an annual cost for the service provided, didn't include any piece of equipment. I also made the decision that that would be something that I wouldn't be interested in because it was too expensive. If it was something different from that, like a one-off payment, then I would think differently about it, or if it included some equipment with it then I might think differently about it.'* [Female, Alison]

**Category 3.** Those who were confused altogether by the price attribute:

*'I presumed, well, I was a bit confused about it. I didn't know whether it was a monthly cost, weekly cost, yearly cost. The idea of actually paying for the radio. I didn't know what it referred to.'* [Male, Geoffrey]

*'Well, I would've thought that that [paying this price] would've been at the time of purchase but then, thinking about it, it was probably an ongoing cost'... 'I think, possibly, it wasn't made clear, it could've ended up as a subscription cost, yes.'* [Male, Damian]

### **Prompted approach**

Secondly, when participants were then asked if the price attribute referred to a one-off cost or an annual cost, the answers were fairly even split between the two (Table 8).

**Table 8: Interpretation of the price attribute – interim (18 interviews completed)**

	Women	Men	All
One-off cost	5	6	11
Subscription fee	6	3	9
Total	11	9	20

Note: Number of respondents

Source: Telephone interviews

Women were more likely to think that the price attribute represented a recurring cost and they likened it to a 'radio license.' Other words that were used to describe this recurring cost were 'package' and 'services'.

*'I would expect that the license fee would vary between the elements. Presumably that inside the license fee is an element for radio, even though we don't pay it separately, and I would expect that to increase from £30 to £33, £34, depending on the level of service that would be received.'* [Female, Sandra]

Those in category 1 thought the benefits should last for the lifetime of the radio, which is what we would expect given the wording of the choice experiment: the introduction referred to "radio listening" in general, and several of the attribute descriptions are phrased as on-going benefits.<sup>4</sup> All participants expected a digital radio set to last at least five years and most expected it to last for much longer as it is perceived as an item where the benefits ought to last indefinitely.

*'I would expect them [the benefits] to last as long as the product lasted. So, forever, or until it broke down and I got another one.'* [Female, Heather]

Those in category 2 tended to think that the benefits would last for the duration of the subscription, whether that was a month or, more often, a year.

### **Analysis according to the individual benefits of digital radio**

We then analysed each of the benefits (i.e. non-price attributes) individually by reviewing each of them with the participant and asking them if this was a benefit that would be part of a one-off cost

<sup>4</sup> For example D3 ("You can listen live, and pause/rewind broadcasts using your radio set") specifically refers to multiple broadcasts, and D2 says that if a person wishes to they "can re-order the list [of channels] to suit [them]", which is an attribute that someone would use in order to make it easier the next time that they came to use the radio.

or an annual recurring cost. Here it is worth bearing in mind that participants may not have seen all six benefits in the experiment due to random allocation across the respondents.

Table 9 summarises how participants perceived each of the individual benefits. Here we see some shifts from the initial unprompted answers given by participants (table 6): once they started to analyse individual benefits, some reached different conclusions about individual benefits relative to their initial response. Overall, there was a bigger shift by participants who initially thought the price attribute referred to a recurring cost, than by those who initially thought was that it referred to a one off cost.

Discussing the price attributes of the individual benefits sometimes made those who initially thought we were talking about a subscription fee confused as they were unsure how the benefits could apply to multiple radio sets. The fact that radio signals are currently free also added to the confusion.

*[when discussing the number of stations] 'I don't know how that would work, so it couldn't be subscription, really, when you think about it, because you couldn't tell that that particular radio, unless you had a specific unit [...] which was pre-programmed when you purchased it [...] to receive particular channels, or however many you wanted to. Other than that, I mean radio waves are free now, wherever they are.'* [Male, Damian]

**Table 9: Interpretation of the price attribute by non-price attribute – interim (18 interview completed)**

Price interpretation	D1: Tuning	D2: Display	D3: Pause/Rewind	D4: No. of Stations	D5: Speciality Stations	D6: Sound
One-off cost	14	16	13	10	6	15
Subscription fee	5	3	6	9	13	3
Confused	1	1	1	1	1	2
Total	20	20	20	20	20	20

Note: Number of respondents

Source: Telephone interviews

Respondents' ability to think about the six attributes as discrete benefits depended on the attractiveness of each (particularly compared to their current radio set) and, specifically, whether they could imagine paying extra for particular attributes. As the table above illustrates, the number of stations and the speciality stations benefits in particular are most often seen as 'something you subscribe to', not only by participants who thought all the benefits were part of a subscription fee, but also by some who thought all the benefits would come with the radio set as part of the purchase price. While some respondents would be willing to pay additionally to gain access to further radio stations most respondents thought this was something they either were not interested in or already had access to. So while respondents saw it as the sort of thing one would pay a recurring cost for (as they are familiar with this concept from television packages) most respondents were not willing to pay additionally for it and would prefer to choose whether to opt in or out especially if that meant the unit price could be kept down.

*'To get a wider range of channels, that might be something I would be prepared to pay for regularly.'* [Female, Kate]

*'It would be better if those channels are included in the price. However, if it meant the standard price had been bumped up, then that might put me off because I'm buying something that I don't want. So that would probably be better-, those channels would be better on a pay-per-listen basis. You know, like an annual fee.'* [Female, Jenny]

*'For the same reason I don't have Sky Sports or Sky Movies, I'm just not going to use it. It would be nice to be able to buy if, for example, I decided to improve my French, it would be nice to have French radio stations to listen to, to improve my French, yes.'* [Female, Heather]

The sound was usually seen as something that would come with the radio set as part of the one off costs, even if participants thought the other benefits would be part of a subscription. Some thought the broadcaster (such as the BBC) had a key role in assuring the sound quality. Those who currently experience a poor sound quality (usually because of their geographical location) were most likely to be willing to pay additionally for a better sound quality.

*'...out of all of them, that is the one that definitely should be guaranteed with the price that you pay at the beginning.'* [Female, Jenny]

*'These days I expect good sound, I expect good picture, I expect the best from whatever I'm buying, because if it doesn't provide the best, then I don't buy.'* [Male, Damian]

*'[...]at the moment, I don't get a good reception all around the house because I'm in a bit of a valley. If I could get good reception with no background noise, that would be-, across a range of stations that I enjoy listening to, that would be really appealing to me.'* [Female, Alison]

There was a mixed response when it came to the tuning attribute, but the majority thought it would be a one-off cost as it would be a feature that would be built into the radio set. Most respondents currently already have this feature and would not be willing to pay additionally for it or very little.

*'Given that it used to consist of a soft component of a variable resistor and knob, a couple of quid, £2 maximum.'* [Female, Heather]

The information display was something most participants thought of as a one-off cost, as it was often something they already had (often to a more limited extent) on their radio set. Some of those who initially thought that all the benefits would be part of a subscription were confused by this benefit, as it was something they could not imagine having to subscribe to. As such most respondents could not imagine paying additionally for it.

*'I find that a bit difficult because my radio displays the station that you're listening to anyway, so I don't see how they could apply a cost to that. I don't really understand, but if I had to get-, and this is again right off the top of my head, I would say it would probably be in the cost of radio when you purchase the radio. So, it would be a one-off cost.'* (Female, Kathleen]

The functionality benefit where you can pause and rewind broadcasts had the broadest appeal and was something participants were familiar with from TV services such as Sky+ and Tivo. It tended to be seen more as a feature of the radio set rather than something one would subscribe to. Though a number of participants thought this was a technical feature that one could be charged a recurring fee for. The willingness to pay for this feature was greater than for any of the other features. One respondent was willing to pay £10 additionally for this feature, whilst another respondent said she'd be willing to pay up to £40 for this.

*'Again, I think that's a one-off. It's a one-off on your Skybox. [...] I would expect it to be built into the component, or the piece of the kit and for it to continue for the life of the product.'* [Female, Heather]

*'That's a very unusual thing to do in a sense, because radio sort of has listen again features and so forth, but to actually pause and rewind it is quite technologically complicated. So I would expect that that would be the sort of thing that people would sort of, if people did use it they would want to use it regularly and therefore there'd be a possibility of charging for it but not everyone would use it. So making it a one-off and available to everyone wouldn't make sense.'* [Male, Daniel]

*'I would expect it to be built into the component, or the piece of the kit and for it to continue for the life of the product. [...] I would be prepared to spend up to £10.'* [Female, Heather]

Finally, when we asked respondents to imagine going into a shop to buy a digital radio set, and to tell us how much they would be willing to pay for a new set, most answered somewhere in the region of £50 or less apart from a few exceptions who thought they had to pay an amount closer to £100. There was more disagreement as to how much more this was compared to an analogue radio set. While most respondents thought it would be at least 30 per cent more expensive some thought it would be up to 100 per cent more expensive.

*'I was thinking like £80 to £100 for a digital one.'* [Female, Emma]

Most participants thought that they would hold on to this radio for a long time because they did not feel that the features of a radio set become outdated very quickly and would not see any need to replace a radio unless it had broken down. Overall they did not feel like they would be missing out on new technological developments if they were to hold on to a radio set for a long time.

*'If it's working well, don't fix what's not broken.'* [Male, Damian]

## 3.2 Where the attributes of digital radio would be available

This section aims to identify whether participants in the choice experiment understood that the attributes of digital radio would be available in-home, in-car or both.

This was not something that participants were consciously thinking about whilst completing the experiment. However, in hindsight most answered that they were thinking more of listening at home than anywhere else, including some that also listen to the radio in the car. For many their mindset when completing the experiment mirrored their typical listening habits, but those who

were strongly certain that the cost represented a radio set tended to relate the choice to in-home listening.

*'From the questions given, I had the feeling it was a one that you'd have in the house.'* [Female, Jenny]

*'I was thinking about having it at home and just how useful it would be whether it would have everything that I listen to in here.'* [Male, David]

*'Primarily in the house [...] in the car you wouldn't be able to operate it [the radio] in quite the same way. Some benefits would be more relevant in the home than in the car.'* [Male, John]

Respondents in Category 2 felt that the subscription would apply to all the radio sets in their household but were unsure how this subscription or 'license' would work outside the house, and were particularly confused as to how this would apply for a car radio.

*Yes, I assumed that because we pay higher license fee that covers the entire house, that that would be the same situation, there would just be one license for the house.* [Female, Sandra]

Some would have answered differently if they had been thinking about using the radio in the car as certain benefits, particularly tuning, would be of more use in the car and they would be willing to pay more for this feature that they would not find as useful on a set in the home:

*'Listening in the car, the tuning thing, you need something that will tune quickly. It's hard to press a button or be able to move quickly between one thing and other, whereas mostly at home it sort of stays between certain channels.'* [Male, Geoffrey]

*'When I'm travelling around the country, the function where you can scroll through the different radio stations available, that would be very useful in the car.'* [Female, Jenny]

### 3.3 Number of radio-sets on which the attributes of digital radio would be available

This section aims to identify whether participants in the choice experiment understood that the attributes of digital radio would be available on just one radio set or on all radio sets owned by the household.

This section ties in closely with Section 3.2. The number of radio sets on which the attributes of digital radio would be available was not something participants thought about consciously when answering the questions. Many had to be prompted on this subject because it did not come up naturally. Those who thought the price attribute was a subscription thought it would be available on multiple sets in the house but they were unsure how that would work.

*I've got no idea how it would work but I was assuming that the service would be available throughout the house, in some way, but I didn't really think that-, I just thought about using it in all of the different areas that I'd listen to the radio.* [Female, Sandra]

One participant who thought of the price attribute as a service that one could opt-in for assumed that you would be able to choose how many radio sets in your household it would apply to and pay additionally for multiple sets.

*'I would think that this would be an option, you can either pay for one or two' [Male, Paul]*

Those who thought about the benefits as part of a one-off purchase price tended to think about one radio set and not multiple ones.

*'I was thinking about something that I have not currently got. So it would be an additional radio set.' [Male, John]*

### 3.4 Individual vs. household responses

This section aims to identify whether participants in the choice experiment responded as an individual or on behalf of their household.

Most of the participants interviewed responded as an individual, either because they were living on their own, because they listened to the radio by themselves, or because they were more avid radio listeners than their partner.

*'By myself, yes. It's a personal radio, yes.' [Male, Marcus]*

*'99 percent of the time I am by myself in the car, so yes, I was just thinking about myself really.' [Male, Paul]*

To answer on behalf of yourself as an individual is the default way in which people tend to complete surveys and many of the instructions provided in consumer and social surveys explicitly ask respondents to do this. This is considered best practice because we cannot be sure of the accuracy with which they would represent the views of another person.

Those who listened to the radio with other members of the family tended to take their entire household into account when answering the questions. They approached the questions from the point of view of which benefits would appeal to them as well as their family members and how they could benefit from them together.

*'I think I was considering what the benefit would be to both of us, because quite often we both want to know what the programme is, that is on, and what is coming up and what music is playing at the time, so yes.' [Female, Sandra]*

*'I was trying to think about the whole situation because, obviously, because we do use it and we both listen together and, I mean, sometimes, when the children are there as well, they are as well, so we all, sort of, get to listen to it, so yes, thinking about the whole thing.' [Male, Damian]*

Most of those who listened with other people in the household but answered the questions from their own perspective said they probably would not have answered the questions differently had they been thinking about other members of their family.

## 4 Overall conclusions

In this section we set out the overall conclusions which can be drawn from the fieldwork with respect to the four key research questions.

### ***Interpretation of the price attribute***

Responses to the online follow-up questions show that a clear majority of respondents interpreted the price attribute to represent a one-off cost, and this is generally supported by the views expressed in the telephone interviews.

An interesting extension to this finding, from the telephone interviews, is that respondents who understood the price to be a one-off cost believed that the benefits should last for the lifetime of the radio (at least for five years and in most cases longer). Intuitively, this is what one would expect given the wording of the choice experiment: the introduction referred to “radio listening” in general, and several of the attribute descriptions are phrased as ongoing benefits.<sup>5</sup>

However, the share of online follow-up respondents and telephone interviewees who interpreted the price as a recurring cost was not insignificant. Therefore, it may be sensible to incorporate both interpretations in the cost-benefit analysis model, either as a sensitivity analysis or by applying some weighted average of the two.

According to the responses to the online follow-up questions, the interpretation of the price attribute does not seem to be greatly affected by the non-price attributes included in the choice. In particular, the shares of respondents who interpreted the price as either a one-off cost or a recurring cost did not vary much according to the digital attribute being tested (see Table 4).

To some extent this contrasts with the findings from the telephone interviews, which suggest that some digital attributes are typically associated with a one-off cost whereas others are associated with a recurring cost. However, this does not imply that during the choice experiment respondents would have interpreted the price attribute differently depending on the digital attribute being tested, since the views expressed in the interviews were given in retrospect and with prompted consideration and discussion.

Therefore, the simplest approach for the cost-benefit analysis modelling could be to apply a single set of shares to the total WTP estimate. Alternatively, attribute specific shares could be applied based on the percentages shown in Table 4 (though since these shares are relatively consistent across the attributes this may not have much effect on the overall outcome).

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<sup>5</sup> For example D3 (“You can listen live, and pause/rewind broadcasts using your radio set”) specifically refers to multiple broadcasts, and D2 says that if a person wishes to they “can re-order the list [of channels] to suit [them]”, which is an attribute that someone would use in order to make it easier the next time that they came to use the radio.

### ***Where the attributes of digital radio would be available***

On balance respondents mainly considered the choices to be in the context of listening at home. This finding is supported by both the online follow-up and the telephone interviews. Excluding those who said ‘don’t know’, over half the online follow-up respondents understood the choices to be in the context of listening at home ‘more’ than they understood them to be in the context of listening in the car.

However, there were clearly a range of interpretations, and in many cases the respondents had both scenarios in mind at least to some extent. Therefore, an appropriate way forward might be to apply some form of weighted average based on the figures presented in Table 5.

Interesting details coming out of the telephone interviews are that respondents often did not *consciously* think about either scenario when doing the choice experiment, and that if they had been thinking about using the radio in the car they might have been willing to pay more for certain digital radio attributes (such as the tuning attribute).

### ***Number of radio-sets on which the attributes of digital radio would be available***

Responses to the online follow-up questions show there is a relatively even split between those who thought that the attributes would be available on just one radio set and those who thought that they would be available on all radio sets owned by the household. Furthermore, the telephone interviews suggest that often this was not something that respondents consciously thought about when completing the choice experiment (which is also reflected in the relatively large share of ‘don’t know’ responses for the online follow-up). Again it might be appropriate to incorporate both interpretations into a cost-benefit model, either as a weighted average or through sensitivity analysis.

### ***Individual vs. household responses***

According to the responses to the online follow-up questions a large majority of respondents based on their choices on their own preferences only, and this is supported by the findings from the telephone interviews. Intuitively, this is what one would expect given the wording of the choice experiment: the introduction refers to the “cost to you” and the attributes consistently refer to “you” (rather than “you and your household”).<sup>6</sup> This corroborates the evidence from the fieldwork that most respondents are replying as individuals.

However, the breakdown by household size shows that the share basing their decision purely on their own preferences decreases as household size increases.

In this case, a potential modelling approach might be to model the costs and benefits on the assumption that all respondents answered based on their own preferences, and then apply an adjustment factor in order to account for those who answered based on the preferences of their entire household (maybe as part of a sensitivity analysis).

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<sup>6</sup> For example, “you have a choice of 20 national stations”, “you can listen live and pause/rewind”, “you have clear sound”, etc.

## Annex 1 Online questionnaire

### Part 1 – Choice experiment questions

To all:

\*\*For the first FOUR questions you will be presented with a choice between Option A and Option B. Option A includes a description of THREE aspects of radio listening and ONE associated cost. Option B also presents THREE aspects of radio listening but ONE of them is different from Option A and there is a different cost. Simply choose which one you prefer given the aspects of radio listening and the cost to you\*\*

For each choice, three from the following list of six analogue attributes were included at random in one option:

A1: *"The radio skips through all the available stations from one to the next, playing each one briefly, and you can stop it at the one you want. Alternatively you can turn a dial to find reception manually."*

A2: *"The only information provided on the radio set is the identification of the station you are listening to."*

A3: *"You can only listen to live radio as it is broadcast."*

A4: *"You have a choice of 10 national stations and between 5 to 25 local stations depending on your area."*

A5: *"You have a choice of around 5 to 10 specialty radio stations, such as stations in different languages, ethnic stations, stations for different religions, and speciality entertainment, sports and music stations."*

A6: *"You may experience sound interference."*

In the alternative option, one of the analogue attributes was changed to the corresponding digital attribute among the following:

D1: *"You can scroll through the names of all the available stations without hearing them and select the one you want to listen to from this list. If you wish to, you can re-order the list to suit you."*

D2: *"Information is continuously provided identifying the station you are listening to, what programme is on, and what song is playing or who is being interviewed."*

D3: *"You can listen live, and pause / rewind broadcasts using your radio set."*

D4: *"You have a choice of 20 national stations and between 5 to 40 local stations depending on your area."*

D5: *"You have a choice of around 20 to 30 specialty radio stations, such as stations in different languages, ethnic stations, stations for different religions, and speciality entertainment, sports and music stations"*

D6: *"You have clear sound and no background interference."*

## Part 2 – Choice experiment follow-up questions

1) When you saw the price displayed at the bottom of each option, what did you understand that price to represent?

[ Open answer ]

2) Thinking about the choices you made, to what extent were you thinking about the radio listening you do at home or in the car?

<1> 1 - At Home

<2> 2

<3> 3

<4> 4

<5> 5 - Both equally

<6> 6

<7> 7

<8> 8

<9> 9 - In the Car

<10> Don't know

3) Thinking about the choices you made, did you think that the attributes of each option would apply to one radio set or all radio sets in your home/car?

<1> One radio set

<2> All radio sets in your home/car

<3> Something else [ open ]

<4> Don't know

4) Thinking about the choices you made, were you answering based on your own preferences or those of everyone in the household, including yourself?

<1> Yourself

<2> Everyone in the household, including yourself

<3> Something else [ open ]

<4> Don't know

**Note: Question 5) was repeated for every specific choice made by the respondent. The choices were re-shown to respondents as a prompt.**

5) When you made this choice, did you think of the price as being a one-off cost, an annual charge, or something else?

<1> One-off cost (like buying a radio-set)

<2> An annual charge (like a licence or subscription fee)

<3 fixed> Something else [ic1a\_open] {open}

<4 fixed> Don't know

### Part 3 – Questions on radio listening

[q1] During an average week, on how many days do you listen to the radio (including listening at home, in the car, at work, via mobile phone, internet or personal stereo)?

- <1> 7 days a week
- <2> 6 days a week
- <3> 5 days a week
- <4> 3 or 4 days a week
- <5> 1 or 2 days a week
- <6> Less often than weekly
- <7> Never / do not listen to the radio

# Those who currently listen to radio

[q2] {multiple} How do you ever listen to radio? Please tick all that apply

- <1> Analogue radio set – i.e. AM/FM/LW
- <2> Digital radio set – i.e. DAB
- <3> Through digital television
- <4> Through the internet
- <5> Another device - mobile phone, iPhone, MP3 player, MP4 player
- <6> In-car/ van radio - analogue i.e. AM/FM/LW
- <7> In-car/ van radio - digital i.e. DAB
- <8> Another way
- <9 xor>Not sure

# Those who listen to radio at least once a week

[q8] {grid} And how many hours do you typically spend listening to radio in a week?

- [q8a] At home
- [q8b] In the car
- [q8c] Somewhere else

- <1> None / not applicable
- <2> up to 2 hours per week
- <3> 3 to 4 hours per week
- <4> 5 to 7 hours per week
- <5> 8 to 14 hours per week
- <6> 15 to 28 hours per week
- <7> more than 28 hours per week

[q3\_numA] {open-intrange 0 50} How many Analogue radio sets (i.e. AM/FM/LW) do you own? Please only include radio sets and not other ways you might listen to the radio, such as in-car radios, computers, mobile phones and television sets. If you don't own an analogue radio set type in 0.

[q3\_numD] {open-intrange 0 50} How many Digital radio sets (i.e. DAB) do you own? Please only include radio sets and not other ways you might listen to the radio, such as in-car radios, computers, mobile phones and television sets. If you don't own a digital radio set type in 0.

# Those who currently listen to radio

[q9] {multiple columns=4} Which, if any, of the following radio stations do you listen to for at least 30 minutes at least once a month?

- <1> Absolute 80s
- <2> Absolute 90s
- <3> Absolute Classic Rock
- <4> Absolute Radio
- <5> BBC 1Xtra
- <6> BBC Radio 1
- <7> BBC Radio 2
- <8> BBC Radio 3
- <9> BBC Radio 4
- <10> BBC Radio 5 Live
- <11> BBC Radio 5 Live Sports Extra
- <12> BBC Radio 6 Music
- <13> BBC Radio 7
- <14> BBC Radio Asian Network
- <15> BBC World Service
- <16> Capital Radio
- <17> Chill
- <18> Choice FM
- <19> Classic FM
- <20> Galaxy
- <21> Heart
- <22> Heat
- <23> Jazz FM
- <36> Kerrang
- <24> Kiss
- <25> LBC
- <26> Magic
- <27> NME Radio
- <28> Planet Rock
- <29> Punjab radio
- <30> Q
- <31> Smash Hits Radio
- <32> Smooth UK
- <33> Talksport
- <34> The Hits
- <35> XFM
- <97 fixed> Other local commercial station [q9a\_other]{open}
- <98 fixed> Any other station [q9b\_other]{open}
- <99 fixed xor> None of these

#All who listen to digital radio

[q10] {multiple order=randomize} Which, if any, of the following features prompted you to get a digital radio set?

- <1> A wider choice of radio stations (e.g. digital only radio stations)
- <2> Clear and high quality sound / interference free
- <3> Extra features (e.g. ability to pause and rewind live radio and programme guides)
- <4> Scrolling text information about the programme (e.g. track and artist name, phone numbers, topics or guests)
- <5> Ease of use (e.g. find your station by name, not frequency)
- <6> Future proof / ready for switchover from analogue
- <7> Got it as a gift
- <8> Like new technology
- <9 fixed> Other [q10\_other] {open}
- <10 fixed xor> Don't know

#All without digital radio

[q12] {multiple order=randomize} Which of the following, if any, explain why you don't have a digital radio set?

- <1> Happy to use existing analogue service
- <2> Too expensive generally
- <3> Don't know why I should
- <4> Don't listen to the radio / wouldn't use it
- <5> Will get it when I have to / analogue signal switched off
- <6> Poor reception in our area
- <7> Not available in our area
- <8> Can get it through digital TV / internet / mobile phone
- <9 fixed> Other [q12\_other] {open}
- <10> Don't know

[q13] How likely are you to get a digital radio in the next year?

- <1> Certain to get one
- <2> Very likely
- <3> Likely
- <4> Unlikely
- <5> Very unlikely
- <6> Certain not to get one
- <7> Don't know

[q14] Do you have a digital radio (i.e. DAB) in your car? If you don't have a car, tick that option below

- <1> Yes
- <2> No
- <3> Don't have a car so not applicable

#Those with a digital radio in their car

[q15] Which of the following best applies when thinking about the digital radio in your car?

- <1> You chose to have digital radio when buying a new car
- <2> It was already installed in the car when you bought it
- <3> You replaced the original analogue radio with a digital radio
- <4> None of the above

#those who chose it as an option when buying a new car or replaced an original analogue

[q16] {multiple order=randomize} You said that you chose to have a digital radio in your car, which of the following reasons explain why?

- <1> Number of stations available
- <2> Access to special interest radio stations (e.g. languages, music or chat)
- <3> Ease of tuning / easy to find stations
- <4> Clear sound (less background interference)
- <5> Consistent sound (no loss of signal when on the move)
- <6> Good coverage across the country
- <7> Extra functions on the set such as scrolling text (station name / DJ / songs)
- <8> Like new technology in general
- <9 fixed> Other [q16a] {open}
- <10 fixed xor> Don't know

# Those who do not have in-car digital radio

[q17] {multiple order=randomize} Why don't you have a digital radio (i.e. DAB) in your car?

- <1> Too expensive
- <2> Radio came with the car and happy with it
- <3> Digital reception is poor in the car
- <4> Prefer listening when I can concentrate
- <6> Never thought about switching it to digital
- <7 fixed> Other [q17\_other]{open}
- <8 fixed xor> Don't know

[q18] {dyngrid roworder=randomize} To what extent do you agree or disagree with the following statements? If you are not sure, please give your best guess.

- [q18\_1] Digital radio...has more stations that are of interest to me than analogue radio
- [q18\_2] Digital radio...has less reliable reception than analogue radio (loss of signal/ wavering sound)
- [q18\_3] Digital radio...has a clearer sound than analogue radio (no background interference)
- [q18\_4] Digital radio...is easier to tune/ find stations than on analogue radio
- [q18\_5] Digital radio...is too expensive at the current time compared to an analogue radio
- [q18\_6] Digital radio...sets have more useful functions than an analogue radio
- [q18\_7] With digital radio...it is easy to catch-up if you miss a programme
- [q18\_8] Digital radio...sets use less energy than analogue radios
- <1> 1 - Strongly Disagree
- <2> 2 - Tend to Disagree
- <3> 3 - Tend to Agree
- <4> 4 - Strongly Agree
- <5> Don't know

## Annex 2 Choice experiment set-up

The wording used in the choice experiment matched exactly that used in the choice experiment undertaken in early 2011. Box 1 presents the wording of the choice experiment introduction screen, and Table 10 presents the wording of the attribute descriptions.

For each choice respondents were asked to choose between two options, where one option contained a single digital attribute alongside two analogue attributes, whilst the alternative option contained the three corresponding analogue attributes.

### Box 1: Choice experiment introduction screen

For the first EIGHT questions you will be presented with a choice between Option A and Option B. Option A includes a description of THREE aspects of radio listening and ONE associated cost. Option B also presents THREE aspects of radio listening but ONE of them is different from Option A and there is a different cost. Simply choose which one you prefer given the aspects of radio listening and the cost to you.

**Table 10: Attribute descriptions used in the choice experiment**

Digital attributes	Analogue attributes
<b>Tuning:</b>	
D1: "You can scroll through the names of all the available stations without hearing them and select the one you want to listen to from this list. If you wish to, you can re-order the list to suit you."	A1: "The radio skips through all the available stations from one to the next, playing each one briefly, and you can stop it at the one you want. Alternatively you can turn a dial to find reception manually."
<b>Information display:</b>	
D2: "Information is continuously provided identifying the station you are listening to, what programme is on, and what song is playing or who is being interviewed."	A2: "The only information provided on the radio set is the identification of the station you are listening to."
<b>Functionality:</b>	
D3: "You can listen live, and pause / rewind broadcasts using your radio set."	A3: "You can only listen to live radio as it is broadcast."
<b>Number of stations:</b>	
D4: "You have a choice of 20 national stations and between 5 to 40 local stations depending on your area."	A4: "You have a choice of 10 national stations and between 5 to 25 local stations depending on your area."
<b>Speciality stations:</b>	
D5: "You have a choice of around 20 to 30 speciality radio stations, such as stations in different languages, ethnic stations, stations for different religions, and speciality entertainment, sports and music stations"	A5: "You have a choice of around 5 to 10 speciality radio stations, such as stations in different languages, ethnic stations, stations for different religions, and speciality entertainment, sports and music stations."
<b>Sound:</b>	
D6: "You have clear sound and no background interference."	A6: "You may experience sound interference."

## Annex 3 Choice experiment results

In this annex we compare the answers from the follow-up choice experiment with those from the original 2011 choice experiment, in order to check that the answers are broadly in line.

We do not repeat the full WTP analysis here since the limited number of observations from the new dataset means that the econometric results (and therefore WTP estimates) are not robust. Instead it is more appropriate to compare the shares of occasions where the digital and analogue options were chosen during the original experiment compared to during the follow-up.

Each time a respondent made a choice a different digital attribute was ‘tested’, meaning that that attribute was included in one of the options alongside two analogue attributes (see Annex 2)

The shares of occasions in which the digital and analogue options were chosen are presented in Table 11 (for the original experiment) and Table 12 (for the follow-up), according to the digital attribute being tested.

The tables present the shares for three different price differentials used in the choice experiment (i.e. the difference between the prices of the analogue option and digital option): £1 (i.e. the lowest differential used); £3 (i.e. the middle differential used); and £5 price (i.e. the highest differential used). The same results are also illustrated in Figure 3, Figure 4 and Figure 5.

Overall, the responses to the follow-up choice experiment questions are generally in line with those from the original experiment:

- The first point to note is that, as one would expect, the shares choosing the analogue option increase as the price differential increases (i.e. as the price premium a respondent would have to pay for the digital option increases). This is the case for every digital attribute for the 2011 data, and for most digital attributes for the follow-up data: Note that, since different respondents made choices over different (randomly allocated) bundles of attributes and price differentials, we would not necessarily expect to see the share choosing the analogue option always increase with the price differential, in particular for the smaller follow-up sample (because the smaller number of observations means that individual preferences may not average-out).
- Secondly, the respondents’ relative preferences across the digital attributes seem to be reasonably in line when we compare the 2011 data with the follow-up data. In both cases there is roughly the same hierarchy among the digital attributes:
  - the *sound quality* attribute (Attribute D6) is the most attractive digital attribute, irrespective of the price differential (see Figure 3, Figure 4 and Figure 5), and
  - the *number of stations* and *speciality stations* attributes are the least attractive digital attributes, irrespective of the price differential, whilst
  - the other three digital attributes, which all relate to how the ‘functionality’ of the radio, lie in between these two.

**Table 11: Shares choosing analogue or digital option, by dital attribute tested and price difference: ORIGINAL EXPERIMENT DATA**

	Price difference: £1		Price difference: £3		Price difference: £5	
	Chose digital	Chose analogue	Chose digital	Chose analogue	Chose digital	Chose analogue
Attribute D1	66.2%	33.8%	59.7%	40.3%	50.5%	49.5%
Attribute D2	73.0%	27.0%	63.2%	36.8%	57.5%	42.5%
Attribute D3	80.1%	19.9%	70.6%	29.4%	59.5%	40.5%
Attribute D4	66.9%	33.1%	55.6%	44.4%	42.7%	57.3%
Attribute D5	62.2%	37.8%	47.2%	52.8%	41.4%	58.6%
Attribute D6	92.1%	7.9%	88.0%	12.0%	82.4%	17.6%

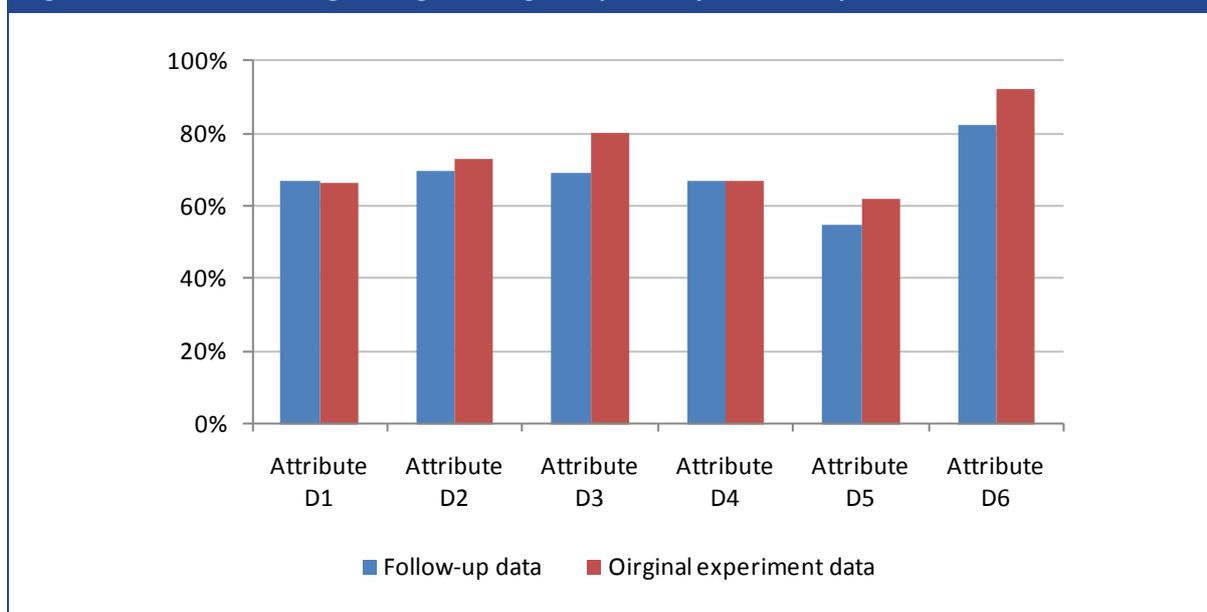
Source: Original choice experiment.

**Table 12: Shares choosing analogue or digital option, by attribute tested and price difference: FOLLOW-UP DATA**

	Price difference: £1		Price difference: £3		Price difference: £5	
	Chose digital	Chose analogue	Chose digital	Chose analogue	Chose digital	Chose analogue
Attribute D1	66.7%	33.3%	59.3%	40.7%	34.8%	65.2%
Attribute D2	69.6%	30.4%	48.4%	51.6%	57.1%	42.9%
Attribute D3	69.0%	31.0%	50.0%	50.0%	40.0%	60.0%
Attribute D4	66.7%	33.3%	33.3%	66.7%	24.0%	76.0%
Attribute D5	54.5%	45.5%	37.5%	62.5%	34.2%	65.8%
Attribute D6	82.1%	17.9%	84.6%	15.4%	87.5%	12.5%

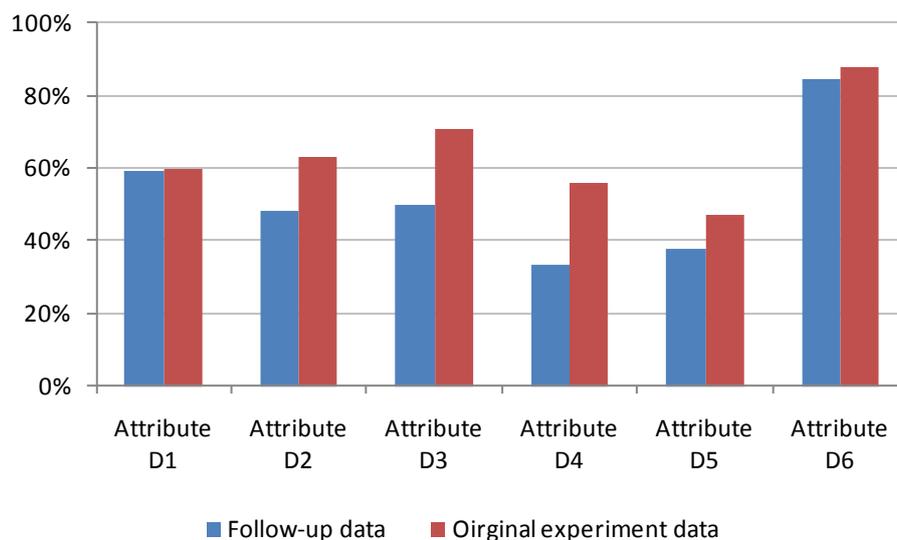
Source: Follow-up choice experiment.

**Figure 3: Shares choosing analogue or digital option, by attribute: price difference = £1**



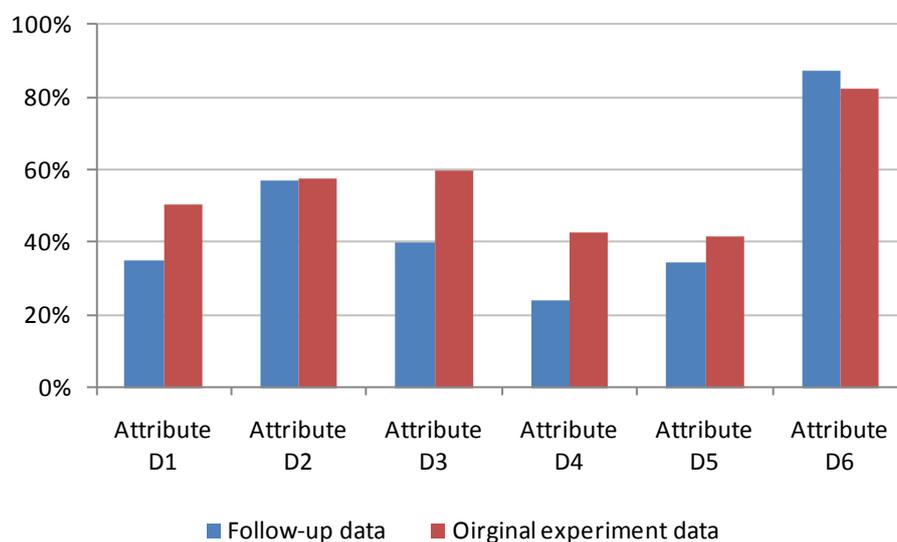
Source: Follow-up choice experiment/original choice experiment.

Figure 4: Shares choosing analogue or digital option, by attribute: price difference = £3



Source: Follow-up choice experiment/original choice experiment.

Figure 5: Shares choosing analogue or digital option, by attribute: price difference = £5



Source: Follow-up choice experiment/original choice experiment.