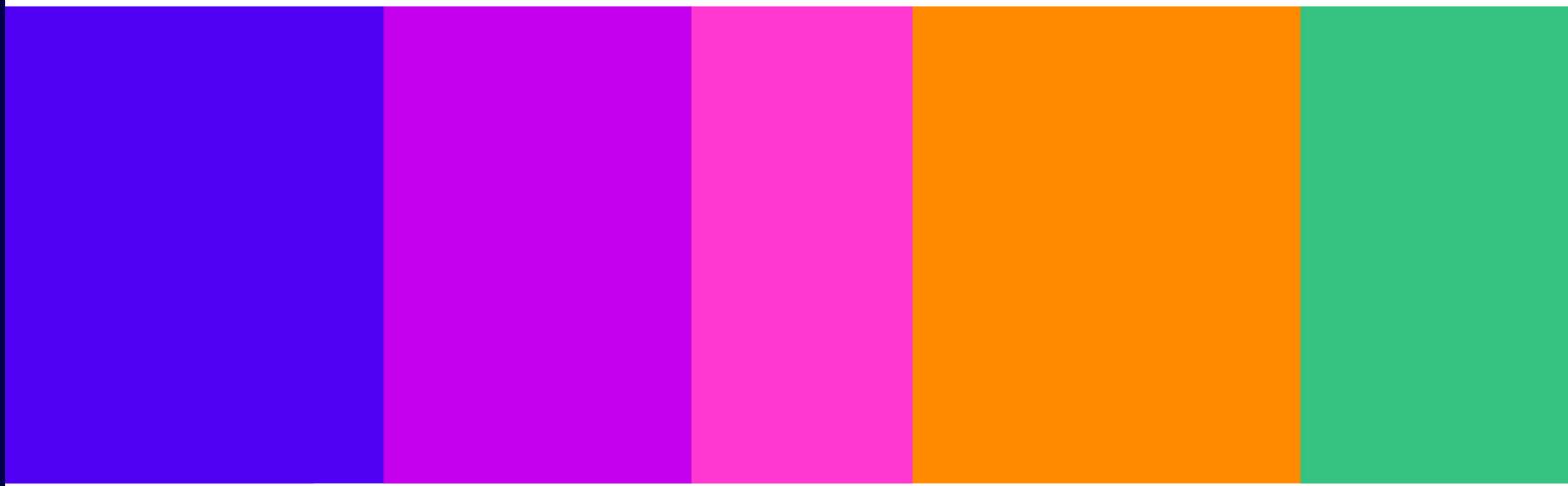# Affordability of communications services, consumer research technical annex

April 2023 update

A1. Consumer research technical annex

Background

1.1 We have been tracking consumers' attitudes and behaviours in our Communications Affordability Tracker since June 2020 via monthly telephone interviews among c.1,100 UK households. The research focuses on affordability issues and asks about actions respondents have taken to help afford communications services in the month prior to interview. In April 2022 we switched to quarterly data collection.

1.2 Our Affordability of communications report update for April 2023 primarily reports survey data from the January 2023 wave of research where sample sizes allow. It also uses combined data from waves of research in April 2022, July 2022, October 2022 and January 2023 to conduct segmentation analysis on respondents in households eligible for mobile or fixed broadband social tariffs.

Analysis notes

1.3 **Income analysis:** Analysis by income (e.g. the lowest household income category) is indicative only as a relatively high proportion (34% in January 2023, 35% on average[1]) of respondents were not willing or able to reveal this information. Non-response levels are higher in C2 and DE socio-economic groups. Therefore, it is possible that affordability issues among the lowest income category are understated.

1.4 **Age, ethnicity and working status:** These data points are based on the decision-maker for communications services in the household and do not necessarily reflect the make-up of the household. We do not collect these data for all members of the household.

1.5 **Comparison with DWP data:** The proportion of the sample allocated to categories of benefit receipt[2] (22%) is lower than expected when compared to Ofcom analysis of data reported by the Department for Work and Pensions ("DWP").

1.6 However, indications suggest benefits recipients are correctly represented in the overall sample, even if they have not identified themselves as being in receipt of benefits. For example, socio-economic group E is well-represented in the data among both older (65+) and younger (under 65) age groups and seven respondents stated they were only in receipt of an 'other' benefit not listed – potentially a means-tested benefit. It is also possible that some respondents in receipt of benefits may have been reluctant to share this information with interviewers, given the sensitivities.

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[1] This average is the % of respondents who have answered 'don't know' or 'refuse' over all 20 waves of research conducted.
[2] Respondents are asked the following question: Could you please tell us whether you or anyone in your household currently receives any of the following benefits? This 22 % includes any that selected a named benefit (not 'other'). Codes include 'none of these' as an option.

Statistical significance testing

1.7   When comparing survey results obtained from sub-groups of the sample, we factor in sampling error margins by conducting two-tailed statistical tests[3] and we only report significant differences at the 95% confidence level.[4] When comparing results between one wave of research and another, we conduct two-tailed statistical tests and only report significant differences at the 99% confidence level. This higher significance level is used to account for any slight differences in methodology across waves.

Overview of methodology

1.8   **Methodology:** CATIbus (Computer Assisted Telephone Interview) survey run by Ipsos MORI.

1.9   **Core objective:** To provide Ofcom with continued understanding of consumer affordability issues in the UK communications markets (covering mobile, landline, fixed broadband, pay-TV and on-demand TV services).

1.10   **Sample size:** 1,102 (January 2023).

1.11   **Fieldwork period:** The fieldwork for the data referenced in this report was carried out during January 2023. Fieldwork generally takes place in the first week of each month and therefore experiences largely reflect those of the previous month e.g., January fieldwork will largely reflect experiences in December. Due to Christmas, fieldwork started in the second week of January.

1.12   **Sample definition:** UK adults aged 18+, identifying those who are either the sole or joint decision-maker for communications services in their household and/or those who personally use a mobile phone, for the main survey. Quotas are set on age, gender, working status and geographical regions. This sample also included a Northern Ireland boost, which was subsequently down weighted in the UK representative results.

1.13   **Sampling process:** Respondents were identified using random digit dialling. The unweighted split between mobile and landline interviews from (January 2023) was 94% mobile and 6% landline and the weighted split was 93% and 7% respectively.

1.14   **Weighting:** The overall data is based on, and weighted to be representative of, the UK adult population (including non-telephone owning households) for the key demographic variables of; gender by age, region, social grade and working status. While the profile of the UK adult population is distinct from the profile of UK households, the questions were answered by a single person in the household and largely relate to what they, or anyone in their household has done or experienced. Therefore, we did not consider it necessary to reweight the data to be representative of UK households as we expect the decision maker sample to be representative of UK households.

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[3] If we compare whether one demographic group is significantly different from another, two-tailed tests indicate whether the demographic group is significantly higher or lower than the comparison group. This differs from one-tailed tests, which explicitly test for differences in one direction. Therefore, if we hypothesised one group was significantly higher than the comparison and used a one-tailed test to assess this, the test would not flag if the group was significantly lower than the comparison.

[4] The confidence interval represents a range in which, if we repeated the survey 100 times, we would expect 95 of 100 samples' confidence intervals to contain a value that is equal to the actual number of households experiencing this issue.

1.15   Full details of the sampled and weighted profile of the sole or joint decision-maker for communications services in their household and/or those who personally use a mobile phone are included below in Table A.1.1.

Table A.1.1: Weighted and unweighted sample splits of January 2023 sample

Variables	Interviews achieved	Weighted
Total[5]	1,102	1,104
Gender		
Male	562 (51%)	536 (49%)
Female	535 (49%)	562 (51%)
Age groups		
18-24	97 (9%)	116 (11%)
25-34	176 (16%)	191 (17%)
35-44	175 (16%)	176 (16%)
45-54	196 (18%)	190 (17%)
55-64	205 (19%)	172 (16%)
65-74	182 (17%)	182 (16%)
75+	71 (6%)	77 (7%)
Regions		
North East	34 (3%)	45 (4%)
Yorkshire and Humberside	75 (7%)	91 (8%)
East Midlands	75 (7%)	80 (7%)
Eastern	97 (9%)	102 (9%)
Greater London	142 (13%)	141 (13%)
South East	137 (12%)	151 (14%)
South West	80 (7%)	96 (9%)
West Midlands	81 (7%)	97 (9%)
North West	106 (10%)	122 (11%)
Wales	64 (6%)	52 (5%)
Scotland	111 (10%)	94 (9%)
Northern Ireland	100 (9%)	32 (3%)
Socio-economic group		
A	55 (5%)	52 (5%)
B	235 (21%)	238 (22%)
C1	394 (15%)	282 (26%)
C2	170 (15%)	231 (21%)
D	92 (8%)	158 (14%)
E	93 (8%)	102 (9%)
Working status		
Any working	704 (64%)	654 (59%)

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[5] When totals in these categories do not sum to 100%, this is because some respondents chose not to answer this question, or a non-standard answer was provided. We omitted this category from this section as less than 100 people gave this answer. Data based on latest Office for National Statistics ("ONS") population estimates.

Variables	Interviews achieved	Weighted
Any not working	397 (36%)	449 (41%)

Population estimates quoted in the report

1.16 In this report we have included population estimates based on percentages from the January 2023 *Communications Affordability Tracker* and Office for National Statistics ("ONS") estimates on the number of households in the UK.[6]

1.17 These population estimates from the January 2023 *Communications Affordability Tracker* are:

a) the number of households that experienced an affordability issue with any communications services 'in the last month' (29% of total UK households in January 2023 – Table A.1.2).

b) the number of households that experienced an affordability issue with their fixed broadband service 'in the last month' (6% of households that own/recently owned fixed broadband in January 2023, which equates to 5% of total UK households – Table A.1.3).

c) the number of households that experienced an affordability issue with their mobile broadband service 'in the last month' (8% of households that own/recently owned a mobile phone in January 2023, which equates to 8% of total UK households – Table A.1.4).

1.18 As we cannot know exactly how many households in the UK are experiencing an issue, alongside each population estimate, we provide a 95% confidence interval. Confidence intervals indicate the range within which we are 95% sure contains the 'real' number of households in the UK in a particular group. These confidence intervals are given in the form of a range around the midpoint value (e.g., +/- 500,000 households) in the main report footnotes, and as an estimate of the upper or lower bound number of households in a particular group in the tables below.

1.19 We generate these by calculating a confidence interval around the estimated number of households that are in our population of interest, and then multiplying these upper and lower bounds by the number of households in the UK.

1.20 All generated household estimates and confidence intervals are reported to the nearest 100,000 and use the latest ONS population estimates. This is the standard rounding that Ofcom use in producing population estimates from survey data with a sample size of around 1100. We provide more precision for larger samples.

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[6] Office for National Statistics , Families and households in the UK, 2021

Table A.1.2: Any communications affordability issue, in the last month

	January 2023 %	ONS - number of households in UK	Estimated number of households (rounded to nearest 100,000)
% and population estimate of UK households experiencing any affordability issue (in the last month)	**29%**	28,100,000	**8,100,000**
Upper bound	32%		8,900,000
Lower bound	26%		7,400,000
Overall Population Estimate			
8,100,000 +/- 800,000			

Table A.1.3: Any fixed broadband affordability issue, in the last month

	January 2023 %	ONS - number of households in UK	Estimated number of households (rounded to nearest 100,000)
% and population estimate of UK households experiencing any fixed broadband affordability issue (in the last month)	**5%**	28,100,000	**1,400,000**
Upper bound	6%		1,800,000
Lower bound	4%		1,000,000
Overall Population Estimate			
1,400,000 +/- 400,000			

Table A.1.4: Any mobile broadband affordability issue, in the last month

	January 2023 %	ONS - number of households in UK	Estimated number of households (rounded to nearest 100,000)
% and population estimate of UK households experiencing any mobile broadband affordability issue (in the last month)	**8%**	28,100,000	**2,300,000**
Upper bound	10%		2,700,000
Lower bound	6%		1,800,000

	January 2023 %	ONS - number of households in UK	Estimated number of households (rounded to nearest 100,000)
Overall Population Estimate			
2,300,000 +/- 500,000			

Fixed and mobile broadband social tariff eligible segmentation analysis

Overview

1.21   Latent class analysis is a statistical procedure used to identify subgroups of an overall population. To find these groups, patterns of response across categorical survey questions are discovered and respondents with similar patterns of response are grouped together.

1.22   We have undertaken two segmentation analyses to further understand the demographics of those eligible for a social tariff that are facing substantial affordability issues with their fixed or mobile broadband service. Respondents whose households reported receiving at least one of the following benefits were qualified as eligible: Income Support, Income-based Jobseeker's Allowance, Pensions Credit (Guaranteed Credit), Employment and Support Allowance (ESA), Universal Credit (and household has other earnings) and Universal Credit (and household has no other earnings).[7] To give us a sufficiently robust data set of those currently eligible, we combined the last four waves of the Communications affordability tracker (April, July and October 2022, and January 2023). This gave a total sample of 4,353 respondents, of which 607 were eligible for a fixed or mobile broadband social tariff and formed the basis of our analysis.

1.23   To complete these segmentations, we used latent class analysis,[8] a statistical procedure that looks at how respondents respond to certain survey questions/categorical indicator variables and separates them into groups based on their responses. Respondents who answer the questions in a similar way will be placed in the same group, while those with different responses will be placed into the other groups.

1.24   Our objective with this analysis was to find respondents with similar, identifiable demographics experiencing similar affordability issues across all communication services and with fixed broadband or mobile broadband. Finding such groups would enable us to understand who might be at more risk of suffering an affordability issue and therefore be more likely to benefit from a broadband or mobile social tariff. This approach distinguishes the characteristics that would potentially make them identifiable to providers for targeted advertisements.

1.25   To create the latent segments in this instance, we looked at responses to several indicator variables covering demographic characteristics and experience of affordability issues. In the

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[7] We no longer include Personal Independence Payment (PIP) as a benefit that would qualify a household as eligible. This is because social tariff providers do not include it in their eligibility criteria.

[8] Weller et al., Latent Class Analysis: A Guide to Best Practice, 2020

mobile segmentation, we also included variables relating to their mobile phone, such as the type of phone they had and what type of contract they used.

1.26 The rest of this section goes into more detail of the steps involved in conducting the latent class analysis for the two segmentations. We then discuss the results of the fixed broadband and then mobile broadband segmentation.

Sample

1.27 This analysis was conducted on survey respondents from waves April 2022 to January 2023 that were eligible for a mobile or fixed broadband social tariff due to them or a member of their household receiving at least one benefit included in eligibility criteria. We modified this eligibility criteria since our previous segmentation, and it no longer includes PIP[9]. This produced an unweighted sample size of 607 respondents. The demographics of this group are provided in Table A.1.5 below.

Table A.1.5: Weighted and unweighted sample splits of April 2022 to January 2023 sample eligible for social tariffs

Variables	Interviews achieved	Weighted
Total	607	678
Gender		
Male	251 (41%)	272 (40%)
Female	346 (57%)	396 (58%)
Age groups		
18-24	70 (12%)	87 (13%)
25-34	108 (18%)	151 (16%)
35-44	93 (15%)	107 (16%)
45-54	100 (16%)	107 (16%)
55-64	195 (17%)	98 (15%)
65-74	80 (13%)	80 (12%)
75+	51 (8%)	49 (7%)
Socio-economic group		
A	12 (2%)	11 (2%)
B	48 (8%)	55 (8%)
C1	134 (22%)	105 (15%)
C2	100 (16%)	141 (21%)
D	70 (12%)	134 (20%)
E	206 (34%)	205 (30%)
Working status		
Any working	221 (36%)	242 (36%)
Any not working	385 (63%)	434 (64%)

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[9] We no longer include Personal Independence Payment (PIP) as a benefit that would qualify a household as eligible. This is because social tariff providers do not include it in their eligibility criteria.

Variables used

1.28   To produce groups that met our objectives for this analysis, we used the characteristics set out in Table A.1.6.

1.29   When preparing the data for entry into the model, we made the following changes to some of the variables:

a) We combined some response categories into broader groups. This allowed for ease of interpretability of the model and prevented respondents from being spread very thinly over many groups.

b) Coded missing or 'don't know/refuse' responses into explicit groups. The model cannot deal with missing data, and so individuals who answered, 'don't know', 'refuse' or 'did not provide an answer' to a question were placed into a 'Don't know/refuse' category. Variables without a 'Don't know/refuse' group did not have anyone answering the question in this way.

Table A.1.6: Variables and response categories included in the segmentation

Variable	Categories of this variable
Variables included in both fixed broadband and mobile broadband segmentations	
Age	- 18-24 - 45-64 - 65+
Reported household income	- <£15,600 per year - £15,600-£36,399 per year - £36,400+ per year - Don't know/refuse
Presence of children in the household	- Child in household - No children in household
Number of people in the household	- 1 - 2 - 3 - 4+ - Don't know/refuse
Working status	- In work - Not in work - Don't know/refuse
Socioeconomic group	- AB - C1 - C2 - DE
Presence of someone with a limiting condition in the household	- Limiting condition in household - No limiting condition in household
Experience of an affordability issues with any communications service	- Experienced any type of communications affordability issue in the last month - Experienced no communications affordability issues in the last month
Variables included in fixed broadband segmentation only	

Variable	Categories of this variable
Experience of an affordability issue with fixed broadband	- Experienced an affordability issue with their fixed broadband service in the last month - Experience no affordability issues with their fixed broadband service in the last month
Variables included in mobile broadband segmentation only	
Experience of an affordability issue with mobile broadband	- Experienced an affordability issue with their mobile broadband service in the last month - Experience no affordability issues with their mobile broadband service in the last month
Personal mobile phone type	- Smartphone - Standard mobile phone - Don't know/refuse
Mobile phone contract type	- A Pay as you go/Pre-pay package - A monthly contract/post-pay which includes the phone - A monthly contract/post-pay which doesn't include the phone (SIM only) - Don't know/refuse
Mobile internet only household	- Household is mobile internet only - Household is not mobile internet only

Model and model fit

1.30   This latent class analysis was carried out using the R package poLCA,[10] on unweighted data. To find how many groups were in the data we ran the analysis and created models containing two to eight groups. We then assessed which model fit the data best by comparing the value of the Bayesian Information Criterion (BIC) across the models, with a lower value indicating better fit. [11] However, in some instances the best fitting model did not provide adequate separation across affordability issues and therefore did not answer our research question. In this case we have chosen the best fitting model where the members of at least one segment have all faced affordability issues. The BIC values for each of the models are included in their relevant section below.

Fixed broadband segmentation

1.31   This segmentation used demographic, and affordability related variables, as described above, to understand which different groups within the population that are eligible for a social tariff, are experiencing affordability issues with their fixed broadband service. This analysis found that separating out the eligible sample into four different groups was the optimal solution for creating coherent segments.

1.32   Each respondent was assigned to the group they were most likely to be belong to. We then looked at how members of each group differed on each of the indicator variables, such as age, household income and presence of affordability issues, used to create the segments. This is shown in Table A.1.8 below shows the results of this analysis.

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[10] Package 'poLCA', 2022

[11] The Bayesian information criterion is a criterion used to select the best fitting model along a finite set of models. Its value is a trade-off between how well the model fits the data, and the number of parameters or groups included in the model. Lower values indicate better fit.

1.33 Another output of the model is the conditional probabilities of a member of each group belonging to each level of the indicator variables, provided in Table A.1.7 below.

1.34 We used the results to understand the characteristics of each group, considering what demographic and affordability groups they are most likely to belong to. A description of each segment and their defining characteristics is given in Table A.1.8.

Table A.1.7: Fixed broadband segmentation, conditional probabilities of segment defining variables

Variable	Fixed 1	Fixed 2	Fixed 3	Fixed 4
Estimated prevalence in the sample	17%	36%	19%	28%
Age				
18-44	67%	24%	21%	72%
45-64	30%	33%	51%	26%
65+	3%	33%	28%	3%
Income				
<£15,600	18%	51%	6%	6%
£15,600-£35,599	34%	14%	30%	32%
£36k+	6%	1%	24%	23%
Don't know/Refuse	42%	34%	39%	39%
Presence of children in the household				
Child in household	50%	1%	0%	83%
No children in household	50%	99%	100%	17%
Number of people in the household				
1	2%	72%	24%	0%
2	22%	27%	41%	12%
3	29%	0%	24%	28%
4+	44%	0%	10%	60%
Don't know/Refuse	2%	1%	0%	1%
Working status				
In work	43%	6%	48%	62%
Not in work	57%	94%	51%	38%
Don't know/Refuse	0%	0%	1%	0%
Socioeconomic group				
AB	5%	2%	26%	12%
C1	19%	7%	35%	33%
C2	32%	6%	20%	17%
DE	33%	80%	15%	31%
Don't know/Refuse	11%	5%	4%	6%
Presence of someone with a limiting condition in the household				
Limiting condition	54%	35%	27%	14%
No limiting condition	46%	65%	73%	86%
Experience of an affordability issues with any communications service				

Variable	Fixed 1	Fixed 2	Fixed 3	Fixed 4
Experienced any type of communications affordability issue in the last month	100%	40%	30%	28%
Experienced no communications affordability issues in the last month	0%	60%	70%	72%
Experience of an affordability issue with fixed broadband				
Experienced an affordability issue with their fixed broadband service in the last month	39%	6%	0%	0%
Experience no affordability issues with their fixed broadband service in the last month	61%	94%	100%	100%

Table A.1.8: Fixed broadband segmentation summary table

Segment	Percent of eligible households	Percent of segment with any communications affordability issues	Percent of segment with a fixed broadband issue	Description and typical demographics
Fixed 1	17%	100%	39%	• All facing an affordability issue, and high levels of fixed broadband affordability issues. • Lower incomes, younger. • Just under half in work, exactly half have a child in the household and just over half have a limiting condition.
Fixed 2	36%	40%	6%	• Higher levels of overall affordability issues, with some fixed broadband issues. • Low incomes, mid to older age and predominantly not in work. • Small households with no children. • Just over a third have someone with a limiting condition in the household.
Fixed 3	19%	30%	0%	• Lower levels of overall affordability issues and no fixed broadband issues. • Low to mid income and middle aged. • Live in smaller households with no children. • Around half are in work and just under 3 in 10 have someone with a limiting condition in the household.

Segment	Percent of eligible households	Percent of segment with any communications affordability issues	Percent of segment with a fixed broadband issue	Description and typical demographics
Fixed 4	28%	28%	0%	• Lower levels of overall affordability issues and no fixed broadband issues. • Low to mid income. • Younger, more likely to be in work and have larger households with children. • Low levels of limiting conditions.

Model fit

1.35   The BIC value for each of the models fitted (from two to eight groups) are given in Table A.1.9.

1.36   As mentioned before, two different segment solutions had lower BIC values than the four-segment solution we decided to use. However, these solutions did not contain segments that differed in their experience of affordability issues, and therefore did not allow us to understand the demographics most likely to experience affordability issues with their communication services.

Table A.1.9: BIC values across fixed broadband segmentation models

Number of groups in model	BIC statistic value
2	9393.480
3	9395.256
4	9437.433
5	9486.893
6	9554.515
7	9617.585
8	9698.395

Mobile broadband segmentation

1.37   This segmentation used demographic, mobile phone and mobile affordability related variables to understand how different groups within the population eligible for a social tariff experienced affordability issues with their mobile.

1.38   Our analysis also found that separating out those eligible for a mobile phone social tariff into four different groups was the optimal solution for creating coherent segments. As before, each respondent was assigned to the group they were most likely to be aligned with, and we looked at how members of each group differed on each of the indicator variables used to create the segments, to understand what differences existed between the groups. Table A.1.10 shows the results of our analysis.

1.39   We used the results to try and understand what differences existed between each of the segments. A description of each segment and their defining characteristics is given in Table A.1.11 below.

Table A.1.10: Mobile broadband segmentation, conditional probabilities of segment defining variables

Variable	Mobile 1	Mobile 2	Mobile 3	Mobile 4
Estimated prevalence in the sample	17%	37%	36%	9%
Age				
18-44	75%	27%	59%	3%
45-64	25%	41%	34%	20%
65+	0%	32%	7%	77%
Income				
<£15,600	16%	41%	6%	39%
£15,600-£35,599	28%	23%	32%	12%
£36k+	14%	3%	23%	6%
Don't know/Refuse	42%	34%	38%	43%
Presence of children in the household				
Child in household	56%	0%	63%	0%
No children in household	44%	100%	37%	100%
Number of people in the household				
1	2%	63%	2%	65%
2	16%	35%	18%	26%
3	28%	3%	32%	2%
4+	49%	0%	48%	5%
Don't know/Refuse	4%	0%	0%	2%
Working status				
In work	48%	17%	60%	0%
Not in work	52%	83%	40%	100%
Don't know/Refuse	0%	0%	0%	0%
Socioeconomic group				
AB	8%	6%	16%	5%
C1	27%	15%	29%	12%
C2	30%	8%	19%	15%
DE	28%	68%	28%	57%
Don't know/Refuse	7%	3%	8%	10%
Presence of someone with a limiting condition in the household				
Limiting condition	51%	37%	16%	38%
No limiting condition	49%	63%	84%	62%
Experience of an affordability issues with any communications service				
Experienced any type of communications affordability issue in the last month	100%	46%	26%	10%

Variable	Mobile 1	Mobile 2	Mobile 3	Mobile 4
Experienced no communications affordability issues in the last month	0%	54%	74%	90%
Experience of an affordability issue with mobile broadband				
Experienced an affordability issue with their mobile broadband service in the last month	71%	7%	0%	0%
Experience no affordability issues with their mobile broadband service in the last month	29%	93%	100%	100%
Personal phone type				
Smartphone	97%	89%	95%	0%
Standard mobile phone	3%	11%	2%	46%
Don't know/refuse	0%	0%	2%	54%
Contract type				
A Pay as you go/Pre-pay package	15%	13%	15%	35%
A monthly contract/post-pay which includes the phone	51%	45%	45%	2%
A monthly contract/post-pay which doesn't include the phone (SIM only)	34%	40%	34%	8%
Don't know/refuse	0%	2%	6%	56%
Mobile internet only household				
Household is mobile internet only	22%	26%	14%	0%
Household is not mobile internet only	78%	74%	86%	100%

Table A.1.11: Mobile broadband segmentation summary table

Segment	Percent of eligible households	Percent of segment with any communications affordability issues	Percent of segment with a mobile broadband issue	Description and typical demographics
Mobile 1	17%	100%	71%	• All facing communication service affordability issues. • The majority are facing an affordability issue with their mobile broadband service. • Younger individuals on lower incomes, in households likely to have a child or multiple occupants. • Split across working/not working • Half of these households contain someone with a limiting condition. • Use smartphones and mostly have contracts. • One in five are mobile internet only.
Mobile 2	37%	46%	7%	• Around a half facing affordability issues, with some mobile broadband issues. • Low income, spanning age groups and predominantly not in work. • Smaller households with no children. • Some limiting conditions. • Use smartphones and mostly have contracts. • A quarter are mobile internet only.

Segment	Percent of eligible households	Percent of segment with any communications affordability issues	Percent of segment with a mobile broadband issue	Description and typical demographics
Mobile 3	36%	26%	0%	• A quarter facing some affordability issue that isn't related to their mobile broadband. • Higher incomes than other segments, younger and mostly in work. • Likely to have a child or multiple occupants in the home. • Few have someone with a limiting condition in the household. • Use smartphones and mostly have contracts. • 14% of these households are mobile internet only.
Mobile 4	9%	10%	0%	• Low levels of affordability issues and no mobile broadband affordability issues. • Older, low-income individuals that are not working and do not have children or many other people in the household. • No smartphone use, and higher levels of PAYG.

Model fit

1.40   The BIC value for each of the models fitted (from two to eight groups) are given in Table A.1.12 below.

1.41   In this segmentation, the four-segment solution was the best fitting model.

Table A.1.12: BIC values across mobile broadband segmentation models

Number of groups in model	BIC statistic value
2	12232.280
3	12158.000
4	12136.430
5	12195.000
6	12250.700
7	12326.910
8	12418.370

Definitions

1.42   **Any affordability issue:** Households who experienced at least one affordability issue with a communications service. Some households experienced more than one affordability issue either with a given service and/or across multiple services. The nets for 'any affordability issue' only count multiple issues/services once to avoid double counting.

1.43   **Impacting or limiting conditions:** These are households with a resident that has any conditions that impact or limit their use of communication services. These can include, but are not restricted to, problems with hearing, eyesight, mobility, mental abilities or mental health.

1.44   **Currently unemployed and looking for work:** These are respondents who when asked about their current work status, answered that they are currently unemployed and seeking work.

1.45   **Receive at least one benefit:** These are households who receive one or more of the following benefits: income support, income-based job seeker's allowance, pensions credit (guaranteed credit), pensions credit (no guaranteed credit), employment and support allowance (ESA), universal credit (both with and without earnings in addition to this), personal independence payment (PIP), carer's allowance, or 'other' form of benefit. Those who receive more than one form of benefit are not double counted.

1.46   **Receive means tested benefits, zero earnings:** These are households who receive one or more of the following benefits: income support, income-based job seeker's allowance, employment and support allowance (ESA), universal credit (without earnings in addition to this). Those who receive more than one form of these benefits are not double counted.

1.47   **Receive means tested benefits:** These are households who receive one or more of the following benefits: income support, income-based job seeker's allowance, employment and support allowance (ESA), universal credit (both with and without earnings in addition to this). Those who receive more than one form of these benefits are not double counted.

1.48   **Eligible for social tariffs:** These are households who receive one or more of the following benefits: income support, income-based job seeker's allowance, employment and support allowance (ESA), pensions credit – guaranteed credit, or universal credit (both with and without earnings in addition to this). Those who receive more than one form of these benefits are not double counted.

1.49   **DE socio-economic group:** Households where the chief income earner (CIE) falls within one of the following categories: semi-skilled and unskilled manual workers, state pensioners, casual and lowest grade workers, unemployed with state benefits only.[12]

1.50   **Social Tariff:** Social tariffs are cheaper broadband and phone packages for people claiming Universal Credit, Pension Credit and some other benefits. Some providers call them 'essential' or 'basic' broadband.

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[12] This definition is provided by the National Readership Survey.