

Technical report

Transport Choices Segmentation and personas

2022-23



Department
for Transport



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1 Introduction

The Department for Transport (DfT) wanted to develop a set of transport user ‘personas’ as a tool for embedding user-centred thinking in its work. This initiative emerged in support of DfT’s strategic priority of Improving Transport for the User (ITU). The personas would provide a tool that would make it easier for people to put passengers and people at the heart of their decision-making.

The aim was to develop the personas based on a pre-existing Travel Choices Segmentation (TCS). First published in 2011, this study segmented the entire population of England into six car-owning segments and three non-car owning-segments, outlined in section 2.1. The TCS segmentation was developed to identify and quantify groups or segments within the population that differed in terms of the factors relevant to reducing CO2 emissions from personal transport use. The segmentation would provide a model which could be used by the Department and its partner organisations (including local authorities) to develop more targeted and effective sustainable transport initiatives.

The TCS segments had been verified by previous research carried out in 2017 by the DfT. However, DfT required a contemporary verification exercise to account for significant changes in travel behaviour observed during the Covid-19 pandemic, increased public attention towards climate change, and increases in the cost of living during 2022.

The study aimed to verify the TCS segments through primary research and the use of statistical analysis techniques, providing a basis for an assessment of the relevance of the segments to the present day.

The intention was to provide reassurance that the segmentation remained relevant as a means of describing transport behaviours in England. Once this could be demonstrated, personas would be developed through qualitative research techniques. The objective of this phase of the research was to bring the segments to life and develop engaging content to build interest and use of the personas within the DfT.

This report details the technical approach taken for this study. It covers the steps taken to verify the TCS segmentation in 2022, the qualitative techniques used to recruit participants within each segment, and the methods used to bring the segments to life in a set of personas.

The purpose of this report is two-fold:

1. to outline the methodology undertaken for the study and provide a summary of the steps taken in the development of the personas to allow interested parties to draw confidence that the study is robust and has validity.
2. to provide clear instructions of the process outlined above for those wishing to replicate/adapt the study.

Additional detail can be found in the Appendices and supporting research materials annex including the survey questionnaire, key statistical and analysis outputs and the materials used to generate the personas.

2 Methodology

2.1 Summary of research approach

This study adopted a mixed methods approach using quantitative and qualitative research techniques to a) validate the Transport Choices Segmentation (TCS) and b) develop a set of personas to bring the segments to life and develop engaging content to build interest and use of the personas within the DfT.

Phase 1 of the study involved an online quantitative survey via the Ipsos Online Access Panel. A questionnaire was developed to better understand the attitudes and behaviours of transport users using newly designed questions as well pre-existing questions used in past validation exercises (see section 2.1). A set of 'golden questions' identified in the original TCS study were included in the survey. These questions when used in conjunction with one another have been identified using statistical (discriminant) analysis as the most effective predictors of segment membership.

The survey involved a nationally representative sample of 5,000 adults aged 16+ across England drawn from the Ipsos online panel (i-Say panel). Quotas were applied in line with population estimates derived from the most recent ONS and PAMCo data available with minor weighting applied to the final data to ensure it was nationally representative. The fieldwork period was between 29th July and 8th August 2022.

The data was run through a newly built algorithm model for the study (see sections 2.3 and 2.4) and produced frequencies for the six car owner segments and three non-car owner segments. The profile of each segment was analysed, particularly in relation to how it may have changed from 2010. The key characteristics of each segment were established, and this data was then used to shape phase 2.

For **Phase 2**, a qualitative approach was adopted to develop personas for each segment. Purposive sampling was used to recruit participants who reflected the core characteristics of each segment. All participants were respondents to Phase 1 who had consented to recontact. This ensured a large and readily available pool of suitable participants to be accurately identified from their responses to the core questions.

To get a fully rounded view of participants' experiences and habits, a three-stage data collection process was employed: (1) Onboarding interview of 45 minutes to get to know the participant and their transport behaviours and familiarise them with the study; (2) Online diary lasting nine days via the Ipsos Applife smartphone app to record transport habits and usage in near-real time, with participants reflecting in detail on how they travelled; (3) In-depth interview lasting around 60 minutes explore the journeys described during the diary task and opportunities for behaviour change in transport habits.

Composite personas for each segment were developed through combining quantitative data with insight from the qualitative data collection phase. The personas were also developed in a

way that reflected the range and diversity of the segmentation data – both quantitative and qualitative – in terms of region, environment, age, gender, and ethnicity. Between two and four participants were recruited per segment, with more diverse and varied segments meaning up to four participants were required to ensure a wider spread of experiences and behaviours. This, in turn, facilitated the generation of two personas for these more diverse segments.

2.2 TCS Segmentation validation – overview

The Transport Choices Segmentation (TCS) was first published in 2011¹ and segmented the population of England into six car owning segments (1-6) and three non-car owning segments (7-9) according to their transport attitudes and behaviours.

Car owning segments:

1. Older, less mobile car owners
2. Less affluent urban young families
3. Less affluent older sceptics
4. Affluent empty nesters
5. Educated suburban families
6. Town and rural heavy car use

Non-car owning segments:

7. Elderly without cars
8. Young urbanites without cars
9. Urban low income without cars

The original segmentation was based on a nationally representative face-to-face, in-home survey of 3,923 adults aged 16+ in England. The survey used random location sampling and took place between November 2009 and June 2010.

A key objective for the original segmentation was to identify segments and differentiate these according to variables relevant to reducing the environmental impacts of personal transport use. The variables included demographics, location characteristics (e.g., rural/urban), attitudes to transport, attitudes to the environment, travel behaviour, car ownership and purchasing

¹ <https://webarchive.nationalarchives.gov.uk/ukgwa/20181112102849/https://www.gov.uk/government/publications/climate-change-and-transport-choices-segmentation-study-final-report>

behaviour. These were recoded into a set of distinct ‘drivers’ which were included in cluster analysis and produced the nine segments.

Using statistical (discriminant) analysis, a reduced set of these ‘drivers’ (or survey variables) were identified as the most effective predictors of segment membership. These variables, known as ‘golden questions’ (see Appendix Table 1a and 1b), were combined in an algorithm and enabled the allocation of all respondents to one of the nine segments. Two sets of golden questions, or algorithms, were developed: one for the car-owning segments, and one for the non-car-owning segments.

The TCS segments were embedded in research carried out by the Department in 2017 by including the golden questions in the National Travel Survey² (NTS). In 2017, the overall accuracy of allocation was very high with both algorithms working to a level of 80% and single segment accuracy of 70% or above, which was in line with the accuracy of segments found in the original TCS study in 2010.

The purpose of a more contemporary verification of the segmentation in 2022 was to check how relevant the segments were to the present day and current policy priorities, understanding the nature of any change since 2010. This was done by conducting a new survey undertaken between July and August 2022.

The survey involved a nationally representative sample of 5,000 adults aged 16+ across England drawn from the Ipsos online panel (i-Say panel). Quotas were applied in line with population estimates derived from the most recent ONS and PAMCo data available with minor weighting applied to the final data to ensure it was nationally representative. The fieldwork period was between 29th July and 8th August 2022. This meant that the 2022 study, its 2017 forerunner and the original TCS survey involved different methodologies in terms of sampling and data collection. As a result, comparisons are not like-for-like (discussed further in section 2.5).

Ipsos administered a 20-minute online self-completion survey which included the TCS golden questions. These were supplemented with newly formed questions designed to help understand new dynamics within transport choices and to contemporise the existing segments by covering new topics. The questionnaire is included in a separate supporting document to this report.

The approaches used to verify the segmentation consisted of the following:

- **A) Is the algorithm predicting segment membership with high probability? Is this level of prediction in 2022 as good as in 2010?** Using cluster probability analysis, each participant assigned to a segment had a percentage probability of belonging to it. This number represented certainty of prediction and was one indication of how well the segmentation and assignment model performed on the new data. A high number of

² <https://www.gov.uk/government/statistics/national-travel-survey-2017>

participants with a very low probability of belonging to each segment could be an indication that there was a new population segment not covered by the TCS.

- **B) Has the distribution of responses on golden questions changed over time (i.e. 2010 vs 2022)?** Another way to assess the model performance and the validity of the segmentation was to measure any significant changes in the distribution of golden questions and to compare the distributions against previous results. This allowed a better understanding of whether any questions were causing issues with cluster membership.
- **C) Has the segment size changed over the time?** A comparison of the segment sizes in 2010 and 2022 would provide some indication of which segments were shrinking and which were growing. Very big fluctuations in size across sample characteristics was also an indication that adjustments in segment definition were required. However, we must also consider that any shifts in segment size may also be down to methodological differences across the two studies.
- **D) Are the segment profiles consistent over time?** Once participants had been assigned a cluster, they were profiled into the segments based on the golden questions and any other questions asked in the survey that matched questions in the previous surveys – the majority of which were socio-demographic measures.

2.3 Quantitative research – review of the 2010 algorithms

The initial assumption was that the data analysis would involve reapplying the algorithms created in 2010 for the original study, to the 2022 sample. This approach would guarantee a high level of consistency with the previous exercise.

However, a review of the 2010 model established uncertainties regarding the recoding of answer codes such as ‘Don’t know’ or ‘Prefer not to say’ and based on the supporting materials of the study it was unclear how these answers, as well as missing values were recoded. A number of attempts were taken to replicate the 2010 algorithm under different assumptions, but none were successful.

As a result, the decision was taken to build a new algorithm from scratch, using the same questions as in the original model.

2.4 Quantitative research – development of the new model

The first step involved identifying whether the respondent was in the car owning or non-car owning segment groups. The assignment was created in line with previous exercises i.e., based on question B5.

How many cars/vans does your household own or have continuous use of at present? Please include company cars/vans (if available for private use). Please include any broken-down vehicles which may be in use in the next month. If more than 9, please enter 9.

Respondents who answered '0', 'refused' and 'don't know' were classified as non-car owning group, the remainder as car owners.

The next step involved processing the data. Appendix 'Table 1a' and 'Table 1b' provide a description of all golden questions for both models, detailing the initial recodes that were applied as well as information about which variables were created.

Based on all recoded categorical variables (A1, B2, B5, B19, B39b, B2_B39, B47_B50, Cn76, Cn76rec, F5_b, F12, F15, Brk_soc) additional dummies variables were created. A dummy representation of a variable is required by models like logistic regression, linear discriminant analysis. A dummy variable is a numerical representation (values '1' – if a given answer option was given, and '0' otherwise) for all answer codes in a given question. For example, in the question on age (F5_b), there were seven different age intervals. By applying dummy transformation, seven variables were created (f5_b_1 to F5_b_7), each one coded '1' as the code was mentioned and '0' otherwise.

For questions A1, B5 and B19rec, additional dummy variables representing groups of answers were created. This step was driven mainly by the goal to achieve additional groups of reasonable distribution.

- **A1:** Codes 1 and 2 (variable A1_12), Codes 1, 2 and 3 (variable A1_13), Codes 5 and 6 (variable A1_56), Codes 4, 5 and 6 (variable A1_46)
- **B5:** Codes 3 to 11 (b5_2to11)
- **B19:** Code 1 (variable B19_0), Codes 2 to 5 (variable B19_25), Codes 2 to 7 (variable B19_27), Codes 8 and 9 (variable B19_89), Codes 10 to 15 (variable B19_10)

For all scale variables (B31_arec, B42_04rec, B42_08rec) additional dummy variables were created:

- **Top box:** code 5 (variables B31_arec_tb, b42_04rec_tb, b42_08rec_tb)
- **Top 2 box answer:** codes 4 and 5 (variables B31_arec_t2b, b42_04rec_t2b, b42_08rec_t2b)
- **Bottom box:** code 1 (variables B31_arec_bb, b42_04rec_bb, b42_08rec_bb)
- **Bottom 2 box:** codes 1 and 2 (variables B31_arec_b2b, b42_04rec_b2b, b42_08rec_b2b)

For the ranking question on safety of trains (B46), two dummy variables were created representing:

- **A least safety mean of transport** (variable Q46_top1)
- **All but most safe mean of transport** (variable Q46_top3)

Variables with very low or high frequency ('skewed' frequencies) were not in the model.

Stepwise Discriminant Analysis was applied to find the significant variables among all variables and interactions created. This enabled us to select the list of the most important features and rejected those that were not contributing to segment prediction. This step-by-step exercise reviewed all variables and selected the one that would contribute most to the discrimination between groups. When there were no more variables or variables that would not improve the development of the model, the process was finished.

Once the list of potential variables was narrowed down to only those that are of significance, multiple classification models were applied, namely Multinomial Logistic Regression, Penalized Logistic Regression (Ridge, Lasso, Elastic Net) and Linear Discriminant Analysis (LDA).

On completion of the above, it was decided that the segment assignment for non-car owner and car owner groups was to be based on Linear Discriminant Analysis (LDA). The main advantages of LDA are that it is fast and simple model type. The list of selected variables for both models and the weighting coefficients that were used to determine segment membership can be found in Appendix (Table 2a & 2b).

Several steps were taken for the model to predict a segment:

1. The participant's answer to each of the golden questions, following all transformations described earlier, was multiplied by the relevant weighting coefficient – this was done for each of the segments/columns
2. The products for each question were summed, generating a single total score for each respondent for each column in the table.
3. The relevant "constant" was added to total value in each column.
4. For the final value in each column, the exponential function was applied.
5. The value of the exponential function for each column was divided by the sum across all segments. This value represented the probability of belonging to each segment.
6. The participant was allocated to the segment/column with the highest probability, with all; participants being allocated to a segment.

An example of how a participant is allocated a segment can be found below:

Table 2. Example of non-car owner segment allocation

| Variable name | Value |
|--|-------|
| (b31_arec) B31_1. Agreement with: In general, I think that successful people tend to travel by car rather than by bus | 5 |
| (b42_08rec) B31_2. Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | 2 |
| (b46) B46. How safe are trains relative to other modes (in terms of risk of being a victim of crime)? | 1 |
| (b47) B47_2. Short-haul international - to somewhere in Europe including the Republic of Ireland | 0 |
| (B47_B50) B50. How many short-haul flights starting from the UK did you make to Europe during the last 12 months? | 0 |
| (cn76) CN76. And how often nowadays , if at all, do you use home delivery (e.g. internet shopping / telephone ordering) for any non-food shopping, such as for buying books, music, clothes, holidays, or insurance? | 1 |
| (B2) B2. Do you have any disability or other long standing health problem that makes it difficult for you to do any of the following? | 4 |
| (B39b) B39b. Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? Please include difficulty due to old age. | 3 |
| (brk_soc) UK01SG. The social grade | 2 |
| (f12) F12. Highest level of education from pre-coded list | 1 |
| (f15) F15. From this list, which of these phrases comes closest to describing your feeling about your household income these days? | 1 |
| (f5_b) resp_age. Age of respondent | 6 |

| Variable name | Value | Segment 7 Coefficient | Segment 7 Coefficient multiplied by answer value | Segment 8 Coefficient | Segment 8 Coefficient multiplied by answer value | Segment 9 Coefficient | Segment 9 Coefficient multiplied by answer value |
|----------------------------|-------|-----------------------|--|-----------------------|--|-----------------------|--|
| b31_arec_t2b_b42_08rec_t2b | 0.00 | -0.443 | 0.00 | -1.502 | 0.00 | 0.795 | 0.00 |
| b31_arec_b2b_CN76rec_4 | 0.00 | 2.810 | 0.00 | 3.282 | 0.00 | 3.226 | 0.00 |
| b42_08rec_t2b_cn76_4 | 0.00 | -3.524 | 0.00 | 0.205 | 0.00 | -1.424 | 0.00 |
| f5_b_6_B2_B3_9_1 | 1.00 | -12.392 | -12.39 | -7.649 | -7.65 | -8.947 | -8.95 |
| b42_08rec_t2b_b2_4 | 0.00 | -7.485 | 0.00 | -10.024 | 0.00 | -14.095 | 0.00 |
| f15_1_cn76_4 | 0.00 | 6.090 | 0.00 | 3.350 | 0.00 | 1.450 | 0.00 |
| B47_B50_1_b_39b_1 | 0.00 | 10.704 | 0.00 | 6.790 | 0.00 | 6.636 | 0.00 |
| CN76rec_4_b3_9b_1 | 0.00 | -3.532 | 0.00 | -0.334 | 0.00 | 0.105 | 0.00 |

| Variable name | Value | Segment 7 Coefficient | Segment 7 Coefficient multiplied by answer value | Segment 8 Coefficient | Segment 8 Coefficient multiplied by answer value | Segment 9 Coefficient | Segment 9 Coefficient multiplied by answer value |
|---------------------|-------|-----------------------|--|-----------------------|--|-----------------------|--|
| f15_1_b42_08rec_t2b | 0.00 | -2.319 | 0.00 | 1.859 | 0.00 | -3.080 | 0.00 |
| f15_2_CN76rec_4 | 0.00 | 2.510 | 0.00 | 1.070 | 0.00 | 0.409 | 0.00 |
| b47_2_b2_4 | 0.00 | 1.010 | 0.00 | 3.360 | 0.00 | 1.590 | 0.00 |
| f5_b_5_b2_4 | 0.00 | -4.425 | 0.00 | 0.785 | 0.00 | 2.273 | 0.00 |
| b46_top3_b39_b_3 | 1.00 | 2.645 | 2.65 | 0.878 | 0.88 | 2.340 | 2.34 |
| f5_b_6_b46_top3 | 1.00 | 2.957 | 2.96 | -2.546 | -2.55 | -0.777 | -0.78 |
| b31_arec_b46_top1 | 5.00 | 0.449 | 2.25 | 0.050 | 0.25 | 0.546 | 2.73 |
| cn76_4_B2_B39_1 | 0.00 | -2.274 | 0.00 | -5.733 | 0.00 | 0.072 | 0.00 |
| brk_soc_4_B2_B39_1 | 0.00 | 2.057 | 0.00 | 4.399 | 0.00 | 0.261 | 0.00 |
| brk_soc_3_B2_B39_1 | 0.00 | 1.609 | 0.00 | 4.381 | 0.00 | -0.167 | 0.00 |
| b42_08rec_t2b | 0.00 | 9.831 | 0.00 | 12.453 | 0.00 | 15.677 | 0.00 |
| f5_b_5_b39b_3 | 0.00 | -11.696 | 0.00 | -6.686 | 0.00 | -8.334 | 0.00 |
| f15_2_b39b_3 | 0.00 | -1.953 | 0.00 | -0.476 | 0.00 | -1.523 | 0.00 |
| brk_soc_6 | 0.00 | 3.278 | 0.00 | 2.664 | 0.00 | 5.281 | 0.00 |
| B2_B39_1 | 1.00 | 9.943 | 9.94 | 16.396 | 16.40 | 12.914 | 12.91 |
| f15_2_b47_2 | 0.00 | 0.840 | 0.00 | 0.471 | 0.00 | -0.973 | 0.00 |
| f12_6 | 0.00 | 3.711 | 0.00 | 0.066 | 0.00 | 4.424 | 0.00 |
| f12_7 | 0.00 | 5.240 | 0.00 | 0.238 | 0.00 | 3.794 | 0.00 |
| f5_b_6 | 1.00 | 16.392 | 16.39 | 12.661 | 12.66 | 8.839 | 8.84 |
| f5_b_5 | 0.00 | 20.890 | 0.00 | 9.701 | 0.00 | 7.100 | 0.00 |
| f5_b_7 | 0.00 | 21.328 | 0.00 | 7.104 | 0.00 | 6.087 | 0.00 |
| f12_1 | 1.00 | 2.421 | 2.42 | 6.496 | 6.50 | 1.169 | 1.17 |
| f12_2 | 0.00 | 2.134 | 0.00 | 4.619 | 0.00 | 1.559 | 0.00 |
| f5_b_2 | 0.00 | 1.857 | 0.00 | 1.838 | 0.00 | 2.279 | 0.00 |
| b31_arec_f15_2 | 0.00 | 0.625 | 0.00 | 0.798 | 0.00 | 0.569 | 0.00 |
| f5_b_6_b31_arec | 5.00 | 1.128 | 5.64 | -0.258 | -1.29 | -0.175 | -0.87 |
| Constant | 1.00 | -18.717 | -18.717 | -13.654 | -13.654 | -12.481 | -12.481 |
| | | | | | | | |
| Sum in column | | | 11.13 | | 11.54 | | 4.91 |

| Variable name | Value | Segment 7 Coefficient | Segment 7 Coefficient multiplied by answer value | Segment 8 Coefficient | Segment 8 Coefficient multiplied by answer value | Segment 9 Coefficient | Segment 9 Coefficient multiplied by answer value |
|--|-------|-----------------------|--|-----------------------|--|-----------------------|--|
| Exponential value | | | 68491.55 | | 102737.17 | | 136.19 |
| Probability (exponential value divided by sum of exponential values) | | | 40% | | 60% | | 0% |
| Final prediction (segment with the highest probability) | | | | | Segment 8 | | |

Accuracy and precision are the most used metrics to assess the correct allocation of segments. The **accuracy** indicates what percentage of respondents originally from a certain segment, were correctly predicted as that segment. The **precision** shows what percentage of those predicted as a certain segment comes from that segment. Both measures are important as they collectively provide an indication of how well the prediction has been performed.

To assess the overall quality of the new 2022 model in predicting segments, the new model was applied to the original 2010 data to ensure similar levels of accuracy and precision were produced as per the original model.

Table 3a and Table 3b below show the accuracy and precision for the car owner model and non-car owner model based on 2010 data. Performance of both models can be judged as very good with both achieving total accuracy of over 75%. Accuracy for individual segments was 74% or higher.

Table 3a. Cross-validated accuracy and precision for car owners model – 2010

| | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | |
|---------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
| Accuracy | 92.3% | 78.7% | 78.3% | 79.4% | 74.1% | 74.0% | |
| Precision | 93.0% | 83.4% | 80.5% | 72.1% | 74.3% | 71.0% | |
| Total Segments 1-6 | | | | | | | 78.9% |

Table3b. Cross-validated accuracy and precision for non-car owners model – 2010

| | Segment 7 | Segment 8 | Segment 9 | |
|---------------------------|-----------|-----------|-----------|--------------|
| Accuracy | 93.5% | 89.8% | 90.8% | |
| Precision | 95.4% | 92.3% | 85.7% | |
| Total Segments 7-9 | | | | 91.7% |

2.5 Quantitative research – model application and comparison of outcomes to 2010 data

A) Is the algorithm predicting segment membership with high probability?

Following the application of the new model, an inspection of probabilities of segment assignment for each respondent in the data was carried out. A summary of probabilities for both models for data from 2010 and 2022 are presented in the following two tables – Table 4a and Table 4b. All outcomes within this section are shown based on weighted data.

Table 4a. Probability of belonging to segment (car owners)

| | 2010 (assigned segments) N | 2010 (assigned segments) % | 2010 (assigned segments) Cum. % | 2022 (assigned segments) N | 2022 (assigned segments) % | 2022 (assigned segments) Cum. % |
|-----------|----------------------------------|----------------------------------|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|
| Over 95% | 1811 | 57% | 57% | 2221 | 56% | 56% |
| 90%-95% | 283 | 9% | 65% | 336 | 9% | 65% |
| 85-90% | 216 | 7% | 72% | 237 | 6% | 71% |
| 80-85% | 164 | 5% | 77% | 194 | 5% | 76% |
| 75-80% | 118 | 4% | 81% | 157 | 4% | 80% |
| 70-75% | 116 | 4% | 85% | 155 | 4% | 84% |
| 65-70% | 126 | 4% | 88% | 140 | 4% | 87% |
| 60-65% | 116 | 4% | 92% | 130 | 3% | 91% |
| 55-60% | 115 | 4% | 96% | 121 | 3% | 94% |
| 50-55% | 77 | 2% | 98% | 123 | 3% | 97% |
| 45-50% | 30 | 1% | 99% | 60 | 2% | 98% |
| 40-45% | 13 | 0% | 99% | 29 | 1% | 99% |
| 35-40% | 10 | 0% | 100% | 24 | 1% | 100% |
| 30-35% | 1 | 0% | 100% | 7 | 0% | 100% |
| Up to 30% | 7 | 0% | 100% | 1 | 0% | 100% |

As shown above, 65% of the car-owning sample were assigned with the probability of **90% or more**, and almost 90% of all participants had a probability of 65% or more.

Table4b. Probability of belonging to segment (non-car owners)

| | 2010 (assigned segments) N | 2010 (assigned segments) % | 2010 (assigned segments) Cum. % | 2022 (assigned segments) N | 2022 (assigned segments) % | 2022 (assigned segments) Cum. % |
|----------|-------------------------------------|-------------------------------------|--|-------------------------------------|-------------------------------------|--|
| Over 95% | 607 | 84% | 84% | 737 | 69% | 69% |
| 90%-95% | 33 | 5% | 89% | 80 | 8% | 77% |
| 85-90% | 11 | 2% | 90% | 43 | 4% | 81% |
| 80-85% | 14 | 2% | 92% | 39 | 4% | 85% |
| 75-80% | 15 | 2% | 94% | 31 | 3% | 87% |
| 70-75% | 14 | 2% | 96% | 30 | 3% | 90% |
| 65-70% | 10 | 1% | 98% | 31 | 3% | 93% |
| 60-65% | 8 | 1% | 99% | 27 | 3% | 96% |
| 55-60% | 7 | 1% | 100% | 23 | 2% | 98% |
| 50-55% | 1 | 0% | 100% | 18 | 2% | 100% |
| 45-50% | 1 | 0% | 100% | 3 | 0% | 100% |
| 40-45% | 0 | 0% | 100% | 1 | 0% | 100% |

These probability figures should be considered as high, keeping in mind that there were six segments to which a participant could have been assigned. Along with the level of accuracy, this indicated that the model was performing well. In addition, these levels of probability were very similar to those seen in 2010, meaning that the segments appear to be valid using the new data.

In terms of the non-car owning group, the certainty of prediction is even higher with 90% of respondents belonging to a given segment with the probability of 70% or higher. This is partially due to there being fewer possible segments, however, comparing the level of probabilities to those in 2010 also suggests a strongly performing model.

The tables below present the estimated probability of belonging to a given segment for each segment - Table 5a shows the 2010 data and Table 5b shows the 2022 data. While some segments perform better than others, a high percentage of respondents have a probability of belonging to their given segment of 70% or higher.

**Table 5a. 2010 - Probability of belonging to assigned segment - by segment
Cumulated column N %**

| | Car owners Total | Car owners seg1 | Car owners seg2 | Car owners seg3 | Car owners seg4 | Car owners seg5 | Car owners seg6 | Car non-owners Total | Car non-owners seg7 | Car non-owners seg8 | Car non-owners seg9 |
|-----------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|---------------------|---------------------|---------------------|
| Over 95% | 57% | 98% | 53% | 58% | 60% | 38% | 54% | 84% | 92% | 82% | 78% |
| 90%-95% | 65% | 98% | 63% | 67% | 68% | 50% | 64% | 89% | 96% | 86% | 85% |
| 85-90% | 72% | 98% | 70% | 72% | 76% | 59% | 71% | 90% | 96% | 89% | 86% |
| 80-85% | 77% | 98% | 77% | 77% | 80% | 66% | 76% | 92% | 96% | 93% | 87% |
| 75-80% | 81% | 98% | 82% | 80% | 84% | 71% | 80% | 94% | 98% | 94% | 91% |
| 70-75% | 85% | 99% | 86% | 83% | 87% | 77% | 83% | 96% | 99% | 94% | 96% |
| 65-70% | 89% | 99% | 90% | 87% | 89% | 82% | 88% | 98% | 99% | 96% | 98% |
| 60-65% | 92% | 99% | 93% | 90% | 92% | 88% | 92% | 99% | 100% | 99% | 98% |
| 55-60% | 96% | 100% | 96% | 95% | 94% | 95% | 95% | 100% | 100% | 100% | 100% |
| 50-55% | 98% | 100% | 99% | 96% | 97% | 98% | 98% | 100% | 100% | 100% | 100% |
| 45-50% | 99% | 100% | 100% | 97% | 99% | 100% | 99% | 100% | 100% | 100% | 100% |
| 40-45% | 99% | 100% | 100% | 98% | 100% | 100% | 99% | 100% | 100% | 100% | 100% |
| 35-40% | 100% | 100% | 100% | 98% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 30-35% | 100% | 100% | 100% | 98% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Up to 30% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 5b. 2022 - Probability of belonging to assigned segment - by segment
Cumulated column N %

| | Car owners Total | Car owners seg1 | Car owners seg2 | Car owners seg3 | Car owners seg4 | Car owners seg5 | Car owners seg6 | Car non-owners Total | Car non-owners seg7 | Car non-owners seg8 | Car non-owners seg9 |
|-----------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|---------------------|---------------------|---------------------|
| Over 95% | 56% | 93% | 46% | 41% | 59% | 30% | 50% | 69% | 77% | 73% | 54% |
| 90%-95% | 65% | 95% | 58% | 53% | 68% | 38% | 60% | 77% | 83% | 80% | 65% |
| 85-90% | 71% | 95% | 65% | 59% | 76% | 49% | 66% | 81% | 85% | 84% | 71% |
| 80-85% | 76% | 96% | 71% | 64% | 80% | 58% | 72% | 85% | 90% | 87% | 76% |
| 75-80% | 80% | 97% | 76% | 70% | 84% | 64% | 77% | 88% | 90% | 88% | 84% |
| 70-75% | 84% | 98% | 81% | 77% | 87% | 68% | 81% | 90% | 93% | 91% | 87% |
| 65-70% | 87% | 99% | 86% | 81% | 90% | 75% | 85% | 93% | 93% | 94% | 92% |
| 60-65% | 91% | 99% | 89% | 85% | 93% | 83% | 89% | 96% | 94% | 97% | 95% |
| 55-60% | 94% | 99% | 92% | 89% | 96% | 90% | 93% | 98% | 97% | 98% | 99% |
| 50-55% | 97% | 100% | 96% | 94% | 97% | 95% | 96% | 100% | 99% | 100% | 100% |
| 45-50% | 98% | 100% | 98% | 97% | 99% | 98% | 98% | 100% | 100% | 100% | 100% |
| 40-45% | 99% | 100% | 98% | 98% | 100% | 99% | 100% | 100% | 100% | 100% | 100% |
| 35-40% | 100% | 100% | 100% | 99% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 30-35% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Up to 30% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

B) Has the distribution of responses on golden questions changed over time?

Analysis was conducted to check the distribution of responses to golden questions to find out if there were any differences between 2022 and 2010 which might affect the estimation outcomes and segment distribution when re-running the algorithms. As expected, we detected several differences with the most striking ones as follows:

- The frequency of use of home delivery for non-food shopping - this increased significantly over the 12-year period.
- The number of short-haul flights taken in the past 12 months - there was a significant decrease in the same period.

Other key differences included changes in attitudes towards cycling, what people considered to be important features when selecting a car, the number of cars they owned, and the incidence of disability. Detailed comparisons of responses based on golden questions are shown in Table 6 in the Appendices.

C) Has the segment size changed over the time?

The next step was to compare segment sizes and profiles in 2010 and 2022, recognising that there were differences in methodologies (as described in section 2.1). The aim of this analysis was to investigate if there had been any significant changes in the segment sizes or profile characteristics which might suggest segments are no longer valid.

As can be seen in Table 7 below, the biggest differences occurred among segments for car owners – ‘Older, less mobile car owners’ and ‘Affluent empty nesters’ which had grown by 7.8 and 7.7 percentage points respectively. On the other hand, segments ‘Less affluent urban young families’, ‘Less affluent older sceptics’ shrunk the most. Those changes could be explained by the changes in the golden questions distribution summarised in Table 6.

The distribution of non-car owning segments was very similar to that observed in 2010. We can also see that the assignment frequencies for 2022 were very similar to the original segmentation frequencies.

Table 7. 2010 vs. 2022 data - comparison of segments distributions

| | Original 2010 N | Original 2010 % | Assigned 2010 (based on new model) N | Assigned 2010 (based on new model) % | Assigned 2022 N | Assigned 2022 % | Assigned 2010 vs Assigned 2022 |
|--------------------------------------|-----------------------|-----------------------|---|---|-----------------------|-----------------------|---|
| 1 Older, less mobile car owners | 348 | 8.9% | 344 | 8.8% | 835 | 16.7% | 7.8% |
| 2 Less affluent urban young families | 836 | 21.3% | 810 | 20.6% | 777 | 15.5% | -5.8% |
| 3 Less affluent older sceptics | 468 | 11.9% | 444 | 11.3% | 287 | 5.7% | -6.2% |
| 4 Affluent empty nesters | 352 | 9.0% | 401 | 10.2% | 835 | 16.7% | 7.7% |
| 5 Educated suburban families | 676 | 17.2% | 645 | 16.4% | 610 | 12.2% | -5.0% |
| 6 Town and rural heavy car use | 522 | 13.3% | 559 | 14.2% | 592 | 11.8% | -1.5% |
| 7 Elderly without cars | 244 | 6.2% | 229 | 5.8% | 258 | 5.2% | -1.0% |
| 8 Young urbanites without cars | 276 | 7.0% | 271 | 6.9% | 538 | 10.8% | 3.7% |
| 9 Urban low income without cars | 202 | 5.1% | 221 | 5.6% | 267 | 5.3% | 0.2% |

D) Are the segment profiles consistent over time?

Analysis was conducted on the profiles of all segments and compared to that created in the TCS segmentation (see Table 8a and Table 8b included in the Appendices). The profile of the segments in 2010 and 2022 appear to be consistent over the time. The largest differences were seen in the segment ‘Urban low income without cars’. Once again, the main differences were characteristics relating to air travel, home delivery, disability level and the number of cars in the household.

Generally, the profiles and segment drivers for 2022 remained consistent with those established by the original 2010 study (see Table 8a and Table 8b in the appendix for detailed breakdown of profiles), however, the decision was taken to change some of the names of the segments to better reflect some shifts in profiles.

E) Do the segment names still accurately represent each segment?

The segment names have been changed for a number of reasons, focused on better capturing the evolving nature of each segment and the wider context of the lives of transport users. The table below outlines the original names, the new names, and a brief explanation of, where possible, why this was changed.

Table 7.1. 2010 vs. 2022 segment names

| | 2010 | 2022 | Reasons for name change |
|---|------------------------------------|---------------------------|---|
| 1 | Older, less mobile car owners | Less mobile, car reliant | <ul style="list-style-type: none"> Age was a less defining characteristic, and this segment was, on average, younger than in 2010. “Car reliant” better captured the nature of this segment than merely being “car owners”. |
| 2 | Less affluent urban young families | Young urban families | <ul style="list-style-type: none"> “Affluent” was no longer considered a useful descriptor given the economic conditions experienced by this (and other) segment(s). |
| 3 | Less affluent older sceptics | Older less affluent | <ul style="list-style-type: none"> Attitudinal perspectives – as captured by “sceptics” in the original naming convention – were less definitional in 2022. |
| 4 | Affluent empty nesters | Comfortable empty-nesters | <ul style="list-style-type: none"> As for segment 2, “affluent” was a less useful descriptor in the 2022 data set. |

| | 2010 | 2022 | Reasons for name change |
|---|-------------------------------|-------------------------------------|---|
| 5 | Educated suburban families | Suburban families | |
| 6 | Town and rural heavy car use | Heavy car users, frequent flyers | <ul style="list-style-type: none"> Flying behaviour added to capture a wider description of mode use within this segment. |
| 7 | Elderly without cars | Elderly and low income without cars | <ul style="list-style-type: none"> “Low income” added to reflect the economic conditions experienced by this segment. |
| 8 | Young urbanites without cars | Urban professionals without cars | <ul style="list-style-type: none"> Age a less defining characteristic vs 2010 and is more spread across age groups in 2022 |
| 9 | Urban low income without cars | Young low income without cars | |

2.6 Using the golden questions and algorithms in future quantitative studies

As demonstrated in section 2.4, the development of a new model in 2022 has provided a high degree of precision and accuracy when predicting segments using the golden questions.

The success of the model and algorithm means that the golden questions can continue to be used for future quantitative studies where there is a policy need to understand behaviours and attitudes of the segments against certain topics of interest.

The core set of golden questions consists of six unique car owner questions, seven unique non-car owner questions, and five common questions for both groups, totalling 18 questions to include on a given survey. However, following the completion of the summer 2022 survey, analysis has been carried out on both algorithms to understand whether a reduced set of golden questions will yield sufficiently high accuracy scores and therefore can be used on future surveys where there is limited space available to include the full set of golden questions. An explanation of this analysis and its outcomes can be found in section 2.6.

Based on our experience of using the full set of golden questions, we advise planning questionnaires on the basis that the questions take approximately 5-6 minutes when data is collected online via self-completion. A reduced set of golden questions (see section 2.6 for further detail) will need to allow for approximately 3-4 minutes. It may also be necessary, depending on the nature of the survey and the questions included, to group golden questions to allow for optimal flow of the survey.

Based on a Transport Technology Tracker survey ran in December 2022, we would recommend including the questions on car ownership & mileage (B5 & B19) at the beginning of the survey

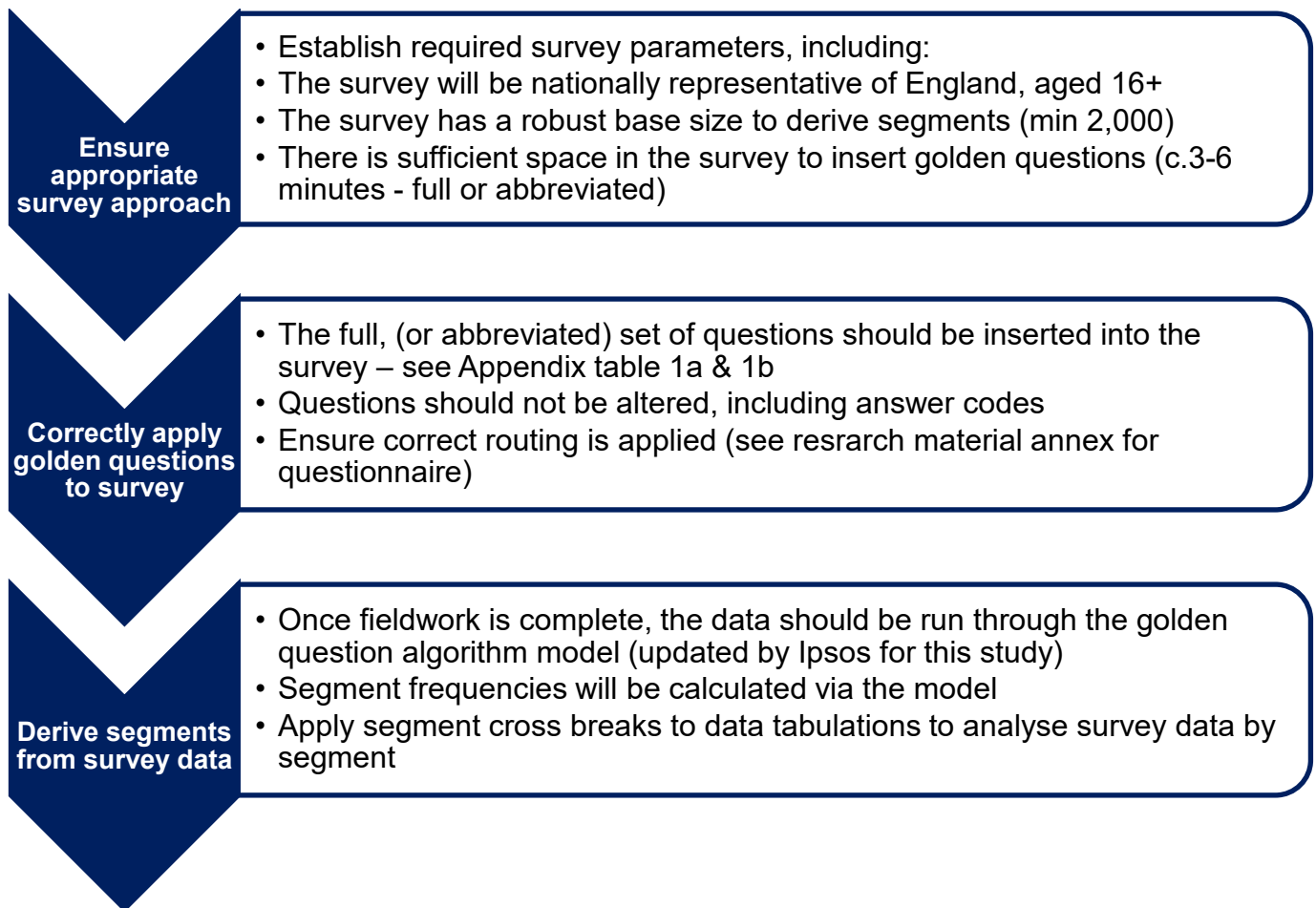
with the remaining demographic and attitudinal questions asked at the end. To retain the high degree of precision and accuracy when predicting segments, it is also recommended to keep question patterns consistent in terms of codes and ensuring answers are mandatory. If answers cannot be mandated, please follow guidance on how to re-code missing answers (see Appendix Table 1a and Table 1b).

Whilst the TCS has been developed on a representative study of people aged 16+ in England and was re-run using this sample definition in 2022, there is potential to apply the segmentation model to a more granular data set, for example by region or local authority. To do so, a sufficient sample size is needed. Ideally a minimum of N=100 per segment is required and based on multiple runs of the algorithms across surveys we would recommend a total sample size of N=2,000 to confidently achieve this. There are also some limitations to consider such as the survey methodology could be different for local/regional studies which could have a bearing on what data is generated and how it can be used. Similarly, local authorities and regions can be very different demographically which we know is a key driver of segment allocation.

As the study has surveyed England only it would be inadvisable to extrapolate the segmentation to larger geographic areas such as the United Kingdom, especially as experiences of and attitudes to transport in different nations of the UK are likely to be different. Moreover, these were not taken into account when developing the original segmentation.

As is always the case when applying an abbreviated set of golden questions, there are limitations and caveats to its application to new data sets. Survey estimates are subject to sampling tolerances. Differences in the incidence of segments generated by future surveys and the original TCS (and the 2022 study) are likely to be the product of differences in data collection and sampling methodologies. These will impact on sample profiles alongside changes over time in behaviour and characteristics (e.g., social grade and car ownership).

A summary of the process of running the golden questions in future surveys can be found below.

Figure 1. Summary of process of running the golden questions in a survey

2.7 Analysis on reducing the number of golden questions

The aim of the analysis was to evaluate the possibility of reducing the number of golden questions needed to predict segments. This analysis was prompted by plans to include the golden questions on future iterations of the National Travel Survey and the need to minimise the number of new questions added on this survey tool.

The algorithms created for the segment assignment in the summer 2022 survey were developed using the original data from the 2010 TCS segmentation. The same data was used to check the impact of removing questions on the accuracy of segment allocation (accuracy is calculated by comparing the predicted and original segments for each case, which is only possible using the 2010 TCS data).

Various combinations of questions to be removed were looked at for car owner and non-car owner algorithms, as well as the option of adding some specific questions to the model to compensate for the loss of accuracy of the algorithm incurred by removing some of the original variables. The aim was to produce the smallest loss of accuracy in comparison with current version of the algorithms, but also to remove enough questions to make a marked difference in the time needed to administer future surveys compared to the complete set of questions.

2.7.1 Car owner's algorithm reduction

The list of all considered options are summarised below.

Table 8. Car owner's algorithm – variants to be evaluated for model reduction.

| Variants | Question(s) to be excluded / added |
|----------|--|
| 1 | remove a. I would cycle (more) if there were more dedicated cycle paths (B42(4)) |
| 2 | remove b. Years in current home (A1) |
| 3 | remove c. Mileage (B19) |
| 4 | remove all three mentioned above |
| 5 | remove all three + adding Presence of children under 16 |
| 6 | remove all three + adding CN75 |
| 7 | remove all three + adding CN76 |
| 8 | remove all three + adding Presence of children under 16 and CN75 |
| 9 | remove all three + adding Presence of children under 16 and CN76 |
| 10 | remove all three + adding CN75 and CN76 |
| 11 | remove all three + adding Presence of children under 16 and CN75 and CN76 |

The summary of all tested models and how they affect accuracy and precision of the algorithm is presented below:

Table 9. Car owner’s algorithm – original algorithm accuracy and summary of considered variants.

| | | Accuracy Seg 1 | Accuracy Seg 2 | Accuracy Seg 3 | Accuracy Seg 4 | Accuracy Seg 5 | Accuracy Seg 6 | Accuracy Total | Precision Seg 1 | Precision Seg 2 | Precision Seg 3 | Precision Seg 4 | Precision Seg 5 | Precision Seg 6 |
|---------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Variant | excluded variable (s) | Seg 1 | Seg 2 | Seg 3 | Seg 4 | Seg 5 | Seg 6 | Total | Seg 1 | Seg 2 | Seg 3 | Seg 4 | Seg 5 | Seg 6 |
| | Original 2022 model | 92% | 79% | 78% | 79% | 74% | 74% | 79% | 93% | 83% | 80% | 72% | 74% | 71% |
| 1 | remove a. I would cycle (more) if there were more dedicated cycle paths (B42(4)) | 90.7% | 75.6% | 75.1% | 77.6% | 67.1% | 66.5% | 74.7% | 92.9% | 77.1% | 78.4% | 68.7% | 66.8% | 68.6% |
| 2 | remove b. Years in current home (A1) | 91.0% | 74.7% | 72.2% | 76.4% | 69.9% | 72.3% | 75.3% | 91.7% | 78.3% | 80.4% | 62.9% | 71.3% | 69.8% |
| 3 | remove c. Mileage (B19) | 92.3% | 75.0% | 75.9% | 78.9% | 69.3% | 72.3% | 76.3% | 92.8% | 78.5% | 78.9% | 70.1% | 70.4% | 70.3% |
| 4 | remove variant 1-3 | 90.7% | 70.3% | 69.3% | 73.9% | 65.1% | 65.3% | 71.5% | 91.5% | 72.7% | 78.5% | 59.3% | 65.5% | 66.8% |
| 5 | remove variant 1-3 + adding Presence of children under 16 | 90.0% | 72.1% | 68.9% | 76.1% | 64.7% | 69.0% | 72.4% | 92.8% | 75.0% | 80.5% | 57.6% | 67.3% | 67.6% |

| | | Accurac y Seg 1 | Accurac y Seg 2 | Accurac y Seg 3 | Accurac y Seg 4 | Accurac y Seg 5 | Accurac y Seg 6 | Accurac y Total | Precisio n Seg 1 | Precisio n Seg 2 | Precisio n Seg 3 | Precisio n Seg 4 | Precisio n Seg 5 | Precisio n Seg 6 |
|----|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| 6 | remove variant 1-3 + adding CN75 | 90.7% | 72.0% | 74.6% | 75.1% | 66.5% | 67.5% | 73.5% | 91.5% | 74.2% | 78.9% | 63.8% | 67.5% | 69.1% |
| 7 | remove variant 1-3 + adding CN76 | 90.7% | 76.2% | 75.9% | 72.4% | 64.6% | 71.3% | 74.4% | 91.9% | 74.0% | 78.5% | 66.4% | 69.7% | 69.0% |
| 8 | remove variant 1-3 + adding Presence of children under 16 and CN75 | 90.0% | 74.6% | 74.8% | 77.6% | 63.5% | 70.8% | 74.1% | 93.3% | 75.6% | 80.1% | 61.6% | 69.3% | 69.5% |
| 9 | remove all three + adding Presence of children under 16 and CN76 | 90.5% | 78.4% | 78.1% | 72.9% | 66.9% | 71.0% | 75.8% | 92.9% | 76.8% | 80.9% | 67.1% | 70.1% | 69.4% |
| 10 | remove all three + adding CN75 and CN76 | 90.7% | 76.1% | 75.7% | 72.6% | 66.0% | 69.8% | 74.5% | 91.5% | 76.0% | 79.1% | 64.7% | 68.9% | 69.4% |
| 11 | remove all three + adding Presence of children under 16 and CN75 and CN76 | 90.5% | 78.7% | 78.3% | 73.1% | 67.2% | 72.0% | 76.1% | 92.9% | 77.0% | 81.1% | 67.5% | 70.7% | 70.1% |

After consideration, the final option chosen as the most optimal set of reduced questions was variant 9:

- Remove A1 (years lived in current home)
- Remove B19 (miles driven/year)
- Remove B42_04 (B31_3. Agreement with: I would cycle (more) if there were more dedicated cycle paths)
- Add CN76 to the algorithm (as per non-car owners algorithm)
- Add 'age of children under 16 in household' to the algorithm: *How many children aged under 16, if any, live with you either all or some of the time?* (Numerical range – coded as Yes/No on algorithm)

The model coefficients for each of the variants tested can be found in the appendix (Table 9).

2.7.2 Non-car owner's algorithm reduction

The list of all considered options are summarised below.

Table 10. Non-car owner's algorithm – variants to be evaluated for model reduction.

| Variants | excluded question(s) |
|----------|--|
| 1 | B31_a |
| 2 | b46 |
| 3 | f15 |
| 4 | B50/B47_B50 |
| 5 | Cn76 |
| 6 | B42_08 |
| 7 | b31_a + b46 |
| 8 | b31_a + b46 + f15 |
| 9 | b31_a + b46 + b47/50 |
| 10 | b31_a + b46 + cn76 |
| 11 | b31_a + b46 + b42_08 |
| 12 | b31_a + b46 + b47/50 + f15 |
| 13 | b31_a + b46 + b47/50 + cn76 |
| 14 | b31_a + b46 + b47/50 + b42_08 |
| 15 | b31_a + b46 + b47/50 + cn76 +f15 |
| 16 | b31_a + b46 + b47/50 + cn76 + b42_08 |
| 17 | b31_a + b46 + f15 + b42_08 |
| 18 | b31_a + b46 + b47/50 + cn76 + b42_08 + f15 |
| 19 | b31_a + b46 + f15 + b42_08 + b47/50 |

The summary of all tested models is presented below:

Table 12. Non-car owner’s algorithm – original algorithm accuracy and summary of considered variants

| | | Accuracy Total | Accuracy Seg 1 | Accuracy Seg 2 | Accuracy Seg 3 | Precision Seg 1 | Precision Seg 2 | Precision Seg 3 |
|----------------|-----------------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| | Original algorithm | 91.7 | 93.5 | 89.8 | 90.8 | 95.38 | 92.34 | 85.66 |
| Variant | excluded variable(s) | Total | Seg 1 | Seg 2 | Seg 3 | Seg 1 | Seg 2 | Seg 3 |
| 1 | B31_a | 89.9 | 93.2 | 86.7 | 88 | 94.6 | 90.2 | 82.7 |
| 2 | b46 | 89.6 | 92.2 | 85.9 | 89.2 | 94.6 | 89.0 | 82.9 |
| 3 | f15 | 89.5 | 93.5 | 85.9 | 86.6 | 94.7 | 89.8 | 81.6 |
| 4 | B50/B47_B50 | 89.3 | 92.5 | 85.9 | 87.6 | 93.9 | 88.7 | 83.0 |
| 5 | Cn76 | 88.4 | 92.2 | 83.9 | 86.8 | 94.6 | 87.7 | 80.1 |
| 6 | B42_08 | 89.4 | 92.7 | 86.3 | 87.2 | 93.4 | 89.4 | 83.2 |
| 7 | b31_a + b46 | 89.8 | 93.2 | 85.9 | 88.4 | 94.4 | 90.1 | 82.8 |
| 8 | b31_a + b46 + f15 | 88.9 | 93.2 | 83.5 | 87.6 | 93.7 | 90.3 | 80.8 |
| 9 | b31_a + b46 + b47/50 | 88.9 | 92.7 | 85.9 | 86 | 93.7 | 88.3 | 82.4 |
| 10 | b31_a + b46 + cn76 | 88.3 | 93.5 | 82 | 86.4 | 94.2 | 88.2 | 79.7 |
| 11 | b31_a + b46 + b42_08 | 88.6 | 93.2 | 83.9 | 86 | 93.0 | 88.8 | 81.7 |
| 12 | b31_a + b46 + b47/50 + f15 | 87.6 | 93 | 80.8 | 86 | 92.3 | 89.6 | 79.0 |
| 13 | b31_a + b46 + b47/50 + cn76 | 88.5 | 93 | 84.3 | 85.6 | 93.7 | 87.4 | 81.7 |
| 14 | b31_a + b46 + b47/50 + b42_08 | 87.9 | 93.2 | 82.4 | 85.2 | 92.3 | 87.9 | 81.3 |
| 15 | b31_a + b46 + b47/50 + cn76 + f15 | 87.7 | 93.2 | 82 | 84.8 | 93.5 | 87.8 | 79.1 |
| 16 | b31_a + b46 + b47/50 + | 87.5 | 93.5 | 81.2 | 84.4 | 92.5 | 87.7 | 79.6 |

| | | Accuracy Total | Accuracy Seg 1 | Accuracy Seg 2 | Accuracy Seg 3 | Precision Seg 1 | Precision Seg 2 | Precision Seg 3 |
|----|--|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| | cn76 + b42_08 | | | | | | | |
| 17 | b31_a + b46 + f15 + b42_08 | 88.4 | 93.5 | 83.1 | 86 | 92.8 | 90.6 | 80.2 |
| 18 | b31_a + b46 + b47/50 + cn76 + b42_08 + f15 | 86.4 | 93.2 | 79.2 | 82.8 | 92.5 | 85.6 | 77.8 |
| 19 | b31_a + b46 + f15 + b42_08 + b47/50 | 87.9 | 92.7 | 82.4 | 86 | 92.7 | 89.4 | 79.6 |

After review, the final option chosen as the most optimal set of reduced questions was variant 19:

- Remove B31_a (B31_1. Agreement with: In general, I think that successful people tend to travel by car rather than by bus)
- Remove B42_08 (B31_2. Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops))
- Remove B46 (B46. How safe are trains relative to other modes (in terms of risk of being a victim of crime)?)
- Remove B47 (B47_2. Short-haul international - to somewhere in Europe including the Republic of Ireland)
- Remove B50 (B50. How many short-haul flights starting from the UK did you make to Europe during the last 12 months?)
- Remove F15. (F15. From this list, which of these phrases comes closest to describing your feeling about your household income these days?)

The model coefficients for each of the variants tested can be found in the appendix (Table 10). A summary of the 2022 golden questions and the reduced variants can be found in the appendix (Table 11).

2.8 Personas development – qualitative techniques

Qualitative techniques were employed to enable the construction of composite personas to reflect the range of transport needs and experiences associated with each of the nine segments. Twelve personas were developed in total – for certain segments (specifically segments 1, 7, and 9) the quantitative data suggested enough variation and diversity *within*

each segment that two personas would better capture the range of experiences and transport usage contained within them.

Purposive sampling was used to reflect the core characteristics of each segment – specifically the golden questions and a statistical fit of 80% or above ‘probability’ score of belonging to each segment were used to target quantitative respondents who reflected the typical users within each segment. All those recruited for this phase of the study were respondents to the quantitative element who had consented to recontact. This enabled suitable participants to be accurately identified in line with their responses to the core questions used to define the sample structure, from a large existing pool of people who had agreed to be recontacted.

The range and diversity of transport needs and use within each segment were carefully considered - between two and four participants were recruited per segment - more diverse and varied segments meant four participants were recruited in order to ensure a good spread of experiences, thus facilitating the generation of more than one persona (see Table 12).

A three-stage data collection process ensured that transport users’ background, experience, and attitudes were thoroughly explored and understood, described in more detail below.

It is important to note that the core objective of this stage was to create the twelve personas seen in the final output. As such, while this stage leant heavily on qualitative techniques to identify appropriate participants and to ensure high quality and thorough data collection and analysis, this was not designed to be used as qualitative research per se. Instead, the data gathered was narrowly focused on persona development and did not reflect the full range and diversity of the experiences of the segments.

Sampling and recruitment

The sample structure was carefully tailored to each segment – a one-size-fits all sample structure across all nine segments would be too blunt and risks missing the nuance required to find participants reflecting the segments. The full sample grid and how it applied to each segment is included in the Appendices (see Appendix Table 12) and the key sampling criteria considered for each segment were as follows:

- Key golden question, agreed on a segment-by-segment basis
- Core demographic variables
 - o age
 - o gender
 - o ethnicity
 - o SEG/social class
 - o region (Urban/Rural)
 - o attitude towards the cost of living
 - o education
 - o mobility impairment/disability

- car ownership
- use of online delivery for non-food shopping

For each segment, a sampling target was set against the core variables deemed most relevant to defining whether a participant would be allocated to that segment. Not all variables were applied to all segments – the selection of a particular variable was a balance of how important it is to defining the segmentation and the practicality of recruitment. That is, too many variables would result in an impractical and unwieldy recruitment process. Participants received £150 as a “thank you” for their participation and to compensate them for their time and effort. Ipsos’ executive recruitment team contacted those identified to establish willingness to participate and to arrange a convenient time to start the data collection stage.

Data collection

To get a fully rounded view of participants’ experiences and habits, a three-stage data collection process was employed:

1. **Onboarding.** An initial telephone or online (MS Teams) interview of approximately 45 minutes with an Ipsos researcher to get to know the participant and their transport behaviours, to familiarise them with the study, and to help them download the online diary app.
2. **Online diary.** Keeping a video diary for up to 9 days via the Ipsos Applife smartphone app supporting participants to keep diaries using text, photos, and video. Participants were sent daily tasks and questions via the app. Each task lasted up to 15 minutes per day, and often encouraged participants to upload pictures and videos, to talk through examples of the transport they had used and provide contextual information. This allowed exploration of habits and usage in near-real time and primed participants to reflect in detail on how they travelled.
3. **In-depth interview.** A telephone or online (MS Teams) interview of around 60 minutes with an Ipsos researcher to explore some of the journeys described during the diary task, as well as exploring opportunities for behaviour change in their transport habits. This final stage ensured that participants reflected on their habits from an informed and pre-primed state, having spent the week prior diarising their transport usage.

Fieldwork was conducted between 29th September 2022 and 18th November 2022.

Persona development

The personas for each segment were developed through combining quantitative data with insight from the qualitative data collection phase. From the quantitative dataset, it was established which habits and characteristics best exemplified each segment. Illustrative experiences were drawn from the qualitative data across the diaries and in-depth interviews.

This facilitated the creation of composite personas which best exemplified the segments. The personas were also developed in a way that reflected the range and diversity of the

segmentation data – both quantitative and qualitative – in terms of region, environment, age, gender, and ethnicity.

One or two personas were developed per segment, balancing the relative size of each segment with the practical useability of outputs i.e. too many personas could become cumbersome and confusing, reducing practical application. A list of the questions used from the quantitative survey to feed into the persona development can be found in the appendices (appendix Table 13).

2.9 Using personas in future qualitative studies

Bringing to life the segmentation is the underlying core purpose of the personas created as part of this project. And, therefore, one of the key applications of the personas will be to help guide and frame subsequent qualitative research projects.

The primary way in which the personas can be used in qualitative research is to help establish sample structure – i.e. to frame the range and diversity of different transport users in a way that is relevant to the research and to ensure that the wider segmentation is brought to life for researchers and policy makers. The personas are also a helpful guide to free-find recruitment (rather than using the quantitative respondents available to this study) in that personas can form the basis of case studies or pen portraits.

Examples of how personas might be used to guide qualitative research are as follows:

- **Looking across all segments to ensure range and diversity.** For a qualitative study which is looking across all nine segments, the personas can be used to identify key behaviours. This will be central to building a sample to account for key variables – different modes used, different ages, different environments, etc. In this way, the personas can be used to help identify key behaviours, experiences, or demographics that sampling must cover.

They can also influence the design of recruitment screeners i.e. questions to ask when assessing participant suitability. Key questions used in the creation of each persona can be found in the appendices of this technical report and should be used to guide the development of screening materials. The personas can also act as a sense check on the design of data collection instruments, such as what questions are being asked to explore relevant topics, as well as being a common-sense check on discussion guide design.

It is important to acknowledge that the development of a free-find recruitment screener would need to be pragmatic – a large amount of golden question data was already available in the creation of these personas but would need to be asked afresh in any new study. Therefore, careful consideration will be required of which questions are most relevant to any new research question – simply replicating all the golden questions is likely to result in an unfeasibly lengthy and time-consuming recruitment screener.

- **A deep dive into one or two segments.** Like the above example, the personas will help guide what to consider when defining a sample profile and what to ask at recruitment. When drilling down to a tighter focus on a smaller number of segments, the richness of

the persona descriptions contain a great deal of detail and nuance to help shape what specific elements of the segmentations to focus on when designing sample and recruitment material. That is, in this case researchers may not simply replicate the golden questions used in the original persona development – they might also add extra questions reflecting specific aspects of persona behaviour or attitude.

The rich contextual information about the personas also provides inspiration for data collection design – e.g. type of journey, moments of behaviour change, etc. A typical way the personas could be used is where it is likely that certain personas are particularly relevant to a specific policy or line of inquiry. For example, when trying to ensure a particular mode of transport considers a specific type of transport user within a particular region or location.

Another way in which personas can be used in qualitative research is as stimulus material. That is, the personas can be presented to qualitative research participants to help them get a picture of different types of transport users and how others travel. This can then be used to challenge preconceptions or for prompting discussion of how participants would like to see transport developed to better serve the needs of, for example, Brian and Betty, rather than focusing on participants' own perspectives.

In whatever context, it is important to note that individual personas should not mask the wide diversity and range of demographics, attitudes, and experiences that lie within each segment – no segment is homogenous. Personas are intended to reflect a typical and prevalent transport user within each segment, rather than encompassing all types of transport user. Their virtue is that they are rooted in a rigorous, data-driven process. They are best considered as a means of fostering empathy among policy makers and researchers, to help them travel in the public's shoes.

2.10 A note on qualitative recruitment

When recruiting participants for qualitative research based around these personas, two approaches are viable: firstly, recruiting respondents from a quantitative survey; secondly, recruiting entirely new participants who have not taken part in any prior research (“free-find approach”).

Recruiting from respondents to a prior quantitative survey - as happened in this project - has several advantages over a free-find approach. The major advantage is that the quantitative survey will (or should have been) designed in a way that incorporates the various golden questions and supporting demographic or attitudinal information that will help select appropriate qualitative participants. It should also incorporate questions that collect consent to recontact respondents for subsequent research. As a result, there will exist a pool of people willing to be recontacted about whom information crucial to identifying which persona they best fit is already available, saving the need to ask these questions during qualitative recruitment.

This is the second advantage over free-find approaches - speed. Without the need to ask potential participants lots of questions about their lives and travel habits, recruitment can be conducted relatively swiftly. That is, there is relatively little time needed to approach the existing pool of potential participants and that each individual recruitment conversation is relatively short (and, thus, more likely to encourage participation).

However, depending on the sample size of the quantitative survey there may be relatively few respondents who both fit a particular persona and have also consented to being recontacted. Therefore, free-find qualitative recruitment can be employed alongside or instead of this follow up approach (and, of course, free-find will be essential if consent has not been requested or, indeed, no prior quantitative survey exists).

Free-find recruitment will require partnering with a qualitative recruitment specialist and the development of a screening questionnaire containing all the key questions required to accurately fit potential participants to their closest persona archetype. As is clear from the detail in this technical report, the number of questions and which questions to use depends on many variables. These include: the length of the screening questionnaire; how many of the golden questions are required to ensure you are confident that a participant is closely matched to a particular persona; and the time available for recruitment.

Once these decisions have been made, a qualitative recruitment partner will approach members of the public, exploring their willingness and suitability. The time needed for this stage depends, again, on some of the practical constraints outlined above. So, on the one hand, a free-find approach lacks the convenience of the follow up approach. On the other hand, however, it could be more applicable if the qualitative approach needs a larger number of qualitative participants - for example, if numerous focus groups are being conducted or if in-depth interviews are being used to conduct a deep dive into one or more of the personas.

3 Appendices

Table1a. Golden questions for car owners model with recodes

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|--|---|-----------------------------------|---|------------------|
| A1 | A1. How long have you lived in your current home? | 1=Up to 1 year 2=More than 1 year, up to 2 years 3=More than 2 years, up to 5 years 4=More than 5 years, up to 10 years 5=More than 10 years, up to 20 years 6=More than 20 years 7=Don't know 8=Refused | Variable recoding not required | 1=Up to 1 year 2=More than 1 year, up to 2 years 3=More than 2 years, up to 5 years 4=More than 5 years, up to 10 years 5=More than 10 years, up to 20 years 6=More than 20 years 7=Don't know 8=Refused | A1 |
| B17_11 | B17_11. Speed/performance is important when buying a car or van | 0=No 1=Yes | Missing value recoded into code 0 | 0=No 1=Yes | B17_11rec |
| B17_12 | B17_12. Style/design is important when buying a car or van | 0=No 1=Yes | Missing value recoded into code 0 | 0=No 1=Yes | B17_12rec |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|--|--|-----------------------------------|--|------------------|
| B19 | B19. Approximately how many miles a year do you personally drive in TOTAL in all of the cars/vans owned/used by your household? | 1=0 2=1-499 miles 3=500 - 999 miles 4=1,000 - 1,999 miles 5=2,000 - 2,999 miles 6=3,000 - 3,999 miles 7=4,000 - 4,999 miles 8=5,000 - 6,999 miles 9=7,000 - 8,999 miles 10=9,000 - 11,999 miles 11=12,000 - 14,999 miles 12=15,000 - 17,999 miles 13=18,000 - 20,999 miles 14=21,000 - 29,999 miles 15=30,000 miles and over 16=Don't know / not sure | Missing value recoded into code 1 | 1=0 2=1-499 miles 3=500 - 999 miles 4=1,000 - 1,999 miles 5=2,000 - 2,999 miles 6=3,000 - 3,999 miles 7=4,000 - 4,999 miles 8=5,000 - 6,999 miles 9=7,000 - 8,999 miles 10=9,000 - 11,999 miles 11=12,000 - 14,999 miles 12=15,000 - 17,999 miles 13=18,000 - 20,999 miles 14=21,000 - 29,999 miles 15=30,000 miles and over 16=Don't know / not sure | B19 |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|---|--|--|--|------------------|
| B42_04 | B31_3. Agreement with: I would cycle (more) if there were more dedicated cycle paths | 1=Definitely agree 2=Tend to agree 3=Neither agree nor disagree 4=Tend to disagree 5=Definitely disagree 6=Don't know 7=Not applicable | Reverse order of answer, value 1 recoded into 1 , etc. Answers 6="Don't know" and 7="Not applicable" recoded into value 3, missing value recode into 3 | 1=Definitely disagree 2=Tend to disagree 3=Neither agree nor disagree /DK /Not applicable 4=Tend to agree 5=Definitely agree | B42_04rec |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|---|--|---|--|------------------|
| B5 | B5. How many cars/vans does your household own or have continuous use of at present? Please include company cars/vans (if available for private use) | Numeric value + Refused + DK | Numeric answers, “refused” and “Don’t know” recoded into values as specified in next column | 1=0 vehicles 2=1 vehicle 3=2 vehicles 4=3 vehicles 5=4 vehicles 6=5 vehicles 7=6 vehicles 8=7 vehicles 9=8 vehicles 10=9 vehicles 11=10+ vehicles 12=Refused 13=Don't Know | B5 |
| B2 | B2. Do you have any disability or other long standing health problem that makes it difficult for you to do any of the following? | 1=Go out on foot 2=Use local buses 3=Get in or out of a car 4=None of these | Variable recoding not required | 1=Go out on foot 2=Use local buses 3=Get in or out of a car 4=None of these | B2 |
| B39b | B39b. Do you have any disability or other long standing health problem that makes it/would | 1=Yes - impossible 2=Yes – difficult 3=No 4=Don't know | Variable recoding not required | 1=Yes - impossible 2=Yes – difficult 3=No 4=Don't know | B39b |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|---|---|--------------------------------|---|------------------|
| | make it difficult or impossible for you to ride a bicycle? Please include difficulty due to old age. | | | | |
| Brk_soc | UK01SG. The social grade | 1=A - Upper middle class 2=B - Middle class 3=C1 - Lower middle class 4=C2 - Skilled working class 5=D - Working class 6=E - Lower level of subsistence | Variable recoding not required | 1=A - Upper middle class 2=B - Middle class 3=C1 - Lower middle class 4=C2 - Skilled working class 5=D - Working class 6=E - Lower level of subsistence | Brk_soc |
| F12 | F12. Highest level of education from pre-coded list | 1=University Higher Degree (e.g. MSc; PhD) 2=First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 3=Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) 4=A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent 5=GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent | Variable recoding not required | 1=University Higher Degree (e.g. MSc; PhD) 2=First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 3=Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) 4=A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent 5=GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent | F12 |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|---|---|---|---|------------------|
| | | 6=GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent 7=None of above 8=Refuse | | 6=GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent 7=None of above 8=Refuse | |
| Resp_age | Age of respondent | Numeric value | Numeric values recoded into buckets | 1=16-20 2=21-29 3=30-39 4=40-49 5=50-59 6=60-69 7=70+ | F5_b |
| B2, B39b | Mobility / disability issues (combined from 2 questions) | | Variable created based on 2 questions, b2 and B39b. | 1=Respondent has no mobility or disability issues (b2=4 and b39b=3,4) 2=Respondent has a disability that makes it difficult to ride a bicycle (b39b=2) and no problems | B2_B39 |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|-----------------------------------|-----------------------|---|---|------------------|
| | | | <p>If B2=4 (No mobility issues) and B39b=3 or 4 (No disability issues or DK) new variable equal to 1.</p> <p>If B2=4 (No mobility issues) and B39b=2 (A disability that makes it difficult to ride a bicycle) new variable equal to 2.</p> <p>If B2=1,2 or 3 (Mobility issues) and B39=1 (A disability that makes it impossible to ride a</p> | <p>going out on foot, use local buses or get out of a car (B2=4)</p> <p>3=Respondent has a disability that makes it impossible to ride a bicycle (b39b=1) or has problem with going out on foot, use local buses or get out of a car (B2=1,2,3)</p> | |

| Var name | Question text & original var name | Original values 2010) | Recodes | Values used in 2022 model | Recoded var name |
|----------|-----------------------------------|-----------------------|--|---------------------------|------------------|
| | | | bicycle) new variable equal to 3. | | |

Table1b. Golden questions for non-car owners model with initial recodes

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|----------|---|--|--|--|------------------|
| B31_a | B31_1. Agreement with: In general, I think that successful people tend to travel by car rather than by bus | 1=Definitely agree 2=Tend to agree 3=Neither agree nor disagree 4=Tend to disagree 5=Definitely disagree 6=Don't know 7=Not applicable | Reverse order of answer, value 1 recoded into 1 , etc. Answers 6="Don't know" and 7="Not applicable" recoded into value 3 | 1=Definitely disagree 2=Tend to disagree 3=Neither agree nor disagree /DK /Not applicable 4=Tend to agree 5=Definitely agree | B31_arec |
| B42_08 | B31_2. Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | 1=Definitely agree 2=Tend to agree 3=Neither agree nor disagree 4=Tend to disagree 5=Definitely disagree 6=Don't know 7=Not applicable | Reverse order of answer, value 1 recoded into 1 , etc. Answers 6="Don't know" and 7="Not applicable" recoded into value 3, missing value | 1=Definitely disagree 2=Tend to disagree 3=Neither agree nor disagree /DK /Not applicable 4=Tend to agree 5=Definitely agree | B42_08rec |

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|------------------------|--|--|---|--|------------------|
| | | | recode into 3 | | |
| B46a, B46b, b46c, b46d | B46. How safe are trains relative to other modes (in terms of risk of being a victim of crime)? | 1=most safe 2=second most safe 3=third most safe 4=least safe | Answer B46d=2 coded as 1, answer B46c=2 coded as 2, answer B46b=2 coded as 3, answer B46a=2 coded as 4, | 4=most safe 3=second most safe 2=third most safe 1=least safe | B46 |
| B47 | B47_2. Short-haul international - to somewhere in Europe including the Republic of Ireland | 0=No 1=Yes | Variable recoding not required | 0=No 1=Yes | B47 |
| B47_2, B50 | B50. How many short-haul flights starting from the UK did you make to Europe during the last 12 months? | 1=One 2=Two 3=Three or more | If answer to question b47_2 is equal to "No", B50 should be recoded into 0 | 0=0 1=One 2=Two 3=Three or more | B47_B50 |

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|----------|--|--|--|--|------------------|
| Cn76 | CN76. And how often nowadays, if at all, do you use home delivery (e.g., internet shopping / telephone ordering) for any non-food shopping, such as for buying books, music, clothes, holidays, or insurance? | 1=Regularly 2=Sometimes 3=Have only done this once or twice 4=Never 5=Don't know | Missing value recoded into code 4 or into value 5 (2 variables created, respectively cn76rec and cn76) | 1=Regularly 2=Sometimes 3=Have only done this once or twice 4=Never 5=Don't know | Cn76 Cn76rec |
| B2 | B2. Do you have any disability or other long standing health problem that makes it difficult for you to do any of the following? | 1=Go out on foot 2=Use local buses 3=Get in or out of a car 4=None of these | Variable recoding not required | 1=Go out on foot 2=Use local buses 3=Get in or out of a car 4=None of these | B2 |

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|----------|--|--|--------------------------------|--|------------------|
| B39b | B39b. Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? Please include difficulty due to old age. | 1=Yes – impossible 2=Yes – impossible 3=No 4=Don't know | Variable recoding not required | 1=Yes - impossible 2=Yes - impossible 3=No 4=Don't know | B39b |
| Brk_soc | UK01SG. The social grade | 1=A - Upper middle class 2=B - Middle class 3=C1 - Lower middle class 4=C2 - Skilled working class 5=D - Working class 6=E - Lower level of subsistence | Variable recoding not required | 1=A - Upper middle class 2=B - Middle class 3=C1 - Lower middle class 4=C2 - Skilled working class 5=D - Working class 6=E - Lower level of subsistence | Brk_soc |

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|----------|---|--|-------------------------------------|--|------------------|
| F12 | F12. Highest level of education from pre-coded list | 1=University Higher Degree (e.g. MSc; PhD) 2=First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 3=Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) 4=A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent 5=GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent 6=GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent 7=None of above 8=Refuse | Variable recoding not required | 1=University Higher Degree (e.g. MSc; PhD) 2=First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 3=Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) 4=A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent 5=GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent 6=GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent 7=None of above 8=Refuse | F12 |
| F15 | F15. From this list, which of these phrases comes closest to describing your feeling about your household income these days? | 1=Living comfortably on present income 2=Coping on present income 3=Finding it difficult on present income 4=Finding it very difficult on present income 5=Don't know | Variable recoding not required | 1=Living comfortably on present income 2=Coping on present income 3=Finding it difficult on present income 4=Finding it very difficult on present income 5=Don't know | F15 |
| Resp_age | Age of respondent | Numeric value | Numeric values recoded into buckets | 1=16-20 2=21-29 3=30-39 4=40-49 | F5_b |

| Var name | Question text & original var name | Original values | Recodes | Values used in model | Recoded var name |
|----------|-----------------------------------|-----------------|---------|-----------------------------|------------------|
| | | | | 5=50-59 6=60-69 7=70+ | |

Table2a. Summary of coefficients for car owners model

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|----------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| f5_b_5_B2_B39_1 | Answer 5 from question F5_b multiplied by answer 1 from question B2_B39 | -20.674 | -13.007 | -16.323 | -17.613 | -13.086 | -12.926 |
| f5_b_4_B2_B39_1 | Answer 4 from question F5_b multiplied by answer 1 from question B2_B39 | -1.926 | 10.736 | 3.928 | 0.985 | 8.628 | 7.355 |
| b42_04rec_t2b_b39b_3 | Top 2 box answer from question B42_04 multiplied by answer 3 from question B39 | -7.038 | -23.497 | -25.862 | -24.882 | -23.478 | -24.248 |
| B19rec_10_b39b_3 | Answer codes 10 to 15 from question B19rec multiplied by answer 3 from question B39b | 1.472 | -1.653 | -0.497 | -1.289 | -0.523 | -0.824 |
| f5_b_4_b39_b_3 | Answer 4 from question F5_4 multiplied by answer 3 from question B39b | 1.832 | -10.277 | -2.283 | -1.234 | -7.269 | -5.772 |
| b42_04rec_a1_56 | Answer from question B42_04 multiplied by answer 5 or 6 from question A1 | 2.054 | 2.574 | 2.906 | 2.508 | 2.707 | 2.808 |
| f12_5_B2_B39_1 | Answer 5 from question F12 multiplied by answer 1 from question B39b | -4.645 | -2.946 | -4.194 | -4.100 | -4.413 | -3.343 |
| f5_b_6_B2_B39_1 | Answer 6 from question F5_b multiplied by answer 1 from question B2_B39 | -17.470 | -12.202 | -11.521 | -12.278 | -12.263 | -12.473 |
| a1_12_B2_B39_1 | Answer 1 or 2 from question A1 multiplied by answer 1 from question B2_B39 | 3.188 | 4.037 | 2.572 | 2.453 | 2.370 | 2.778 |
| b42_04rec_f5_b_3 | Answer from question B42_04 multiplied by answer 3 from question F5_b | 0.583 | -0.104 | 0.546 | 0.729 | 0.475 | 0.294 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|-------------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| brk_soc_2_B2_B39_1 | Answer 2 from question Brk_soc multiplied by answer 1 from question B2_B39 | -6.084 | -12.780 | -14.061 | -10.882 | -11.027 | -11.530 |
| B19rec_10_b42_04rec_t2b | Answer codes 10 to 15 from question B19rec multiplied by top 2 box answer from question B42_04rec | 1.448 | 1.796 | 1.680 | 2.337 | 3.144 | 2.362 |
| a1_46_B2_B39_3 | Answer 4, 5 or 6 from question A1 multiplied by answer 3 from question B2_B39 | -4.011 | -9.596 | -11.600 | -13.019 | -10.707 | -11.207 |
| B19rec_89_B2_B39_1 | Answer 8 or 9 from question B19 multiplied by answer 1 from question B2_B39 | 0.028 | -4.173 | -2.647 | -3.683 | -3.885 | -3.205 |
| B17_12rec_B2_B39_1 | Answer from question B17_12 multiplied by answer 1 from question B2_B39 | 0.414 | -0.179 | -0.885 | -0.431 | -1.023 | 0.597 |
| b5_2to11_B2_B39_1 | Answer codes 3 to 11 from question B5 multiplied by answer 1 from question B2_B39 | 11.368 | 4.051 | 3.729 | 4.528 | 6.122 | 11.548 |
| a1_56_B2_B39_1 | Answer 5 or 6 from question A1 multiplied by answer 1 from question B2_B39 | 10.779 | 26.232 | 26.166 | 26.550 | 26.060 | 25.350 |
| B19rec_0_b42_04rec | Answer code 1 from question B19rec multiplied by answer from question B42_04 | 0.837 | 1.007 | 0.451 | 0.465 | 0.206 | 0.520 |
| B19rec_0_a1_46 | Answer code 1 from question B19rec multiplied by answer 4,5 or 6 from question A1_46 | 1.150 | 0.304 | 0.834 | 1.533 | 1.972 | 1.404 |
| a1_56_brk_soc_4 | Answer 5 or 6 from question A1 multiplied by answer 4 from question Brk_soc | 1.073 | 0.661 | -1.027 | -1.355 | -0.310 | -0.400 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|------------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| brk_soc_3_B2_B39_1 | Answer 3 from question Brk_soc multiplied by answer 1 from question B2_B39 | -9.390 | -6.684 | -8.195 | -5.689 | -5.561 | -6.029 |
| brk_soc_4_b5_2 | Answer 4 from question Brk_soc multiplied by answer 2 from question B5 | 1.462 | -1.098 | -1.608 | -3.257 | -2.385 | -4.252 |
| a1_46_f5_b_6 | Answer 4, 5 or 6 from question A1 multiplied by answer 6 from question f5_b | -7.119 | -1.633 | -3.503 | -0.936 | -3.874 | -3.796 |
| b42_04rec_t2b_b5_2to11 | Top 2 box answer from question B42_04rec multiplied by answer codes 3 to 11 from question B5 | -1.850 | -1.155 | -1.586 | -1.266 | -1.803 | -2.707 |
| B19rec_10_brk_soc_2 | Answer codes 10 to 15 from question B19rec multiplied by answer 2 from question Brk_soc | -1.759 | 0.184 | -0.461 | -0.786 | -0.713 | -1.171 |
| b42_04rec_brk_soc_2 | Answer from question B42_04rec multiplied by answer 2 from question Brk_soc | -1.968 | -3.313 | -3.395 | -4.379 | -3.389 | -4.219 |
| b42_04rec_t2b_a1_13 | Top 2 box answer from question B42_04rec multiplied by answer 1, 2 or 3 from question A1 | 4.158 | 4.492 | 5.525 | 5.992 | 5.358 | 5.656 |
| B19rec_89_b5_2to11 | Answer 8 or 9 from question B19rec multiplied by answer codes 3 to 11 from question B5 | 0.550 | 3.061 | 3.016 | 3.358 | 3.886 | 4.392 |
| b42_04rec_f12_5 | Answer from question B42_04rec multiplied by answer 5 from question F12 | 1.031 | 0.820 | 0.919 | 0.569 | 0.528 | 0.428 |
| a1_56_brk_soc_3 | Answer 5 or 6 from question A1 multiplied by answer 3 from question Brk_soc | 0.886 | -0.283 | -2.219 | -0.641 | -0.512 | -0.738 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| b42_04rec_f5_b_4 | Answer from question B42_04rec multiplied by answer 4 from question F5_b | 2.740 | 1.435 | 2.160 | 2.640 | 2.233 | 1.958 |
| a1_46_f12_5 | Answer 4, 5 or 6 from question A1 multiplied by answer 5 from question F5_b | 3.516 | 2.820 | 4.841 | 4.111 | 3.938 | 4.232 |
| b5_2_f5_b_7 | Answer 2 from question B5 multiplied by answer 7 from question F5_b | -0.546 | 0.522 | 1.286 | 0.225 | 1.150 | 2.602 |
| b5_2_f12_7 | Answer 2 from question B5 multiplied by answer 7 from question F12 | 6.254 | 2.196 | 2.714 | 2.020 | 2.799 | 3.817 |
| a1_46_f5_b_5 | Answer 4, 5 or 6 from question A1 multiplied by answer 5 from question F5_b | -2.260 | -1.209 | -0.534 | -0.007 | -2.918 | -3.336 |
| b5_3_B2_B39_1 | Answer 3 from question B5 multiplied by answer 1 from question B2_B39 | -1.531 | -1.154 | 0.281 | -1.427 | -2.088 | -7.311 |
| f12_7_B2_B39_1 | Answer 7 from question F12 multiplied by answer 1 from question B2_B39 | -7.472 | -3.841 | 2.145 | -4.046 | -5.692 | -4.887 |
| a1_56_b39_b_3 | Answer 5 or 6 from question A1 multiplied by answer 3 from question B39b | -19.867 | -36.930 | -34.780 | -34.809 | -36.345 | -35.143 |
| f12_2_b39b_3 | Answer 2 from question F12 multiplied by answer 3 from question B39b | 0.505 | 0.404 | 0.932 | 0.450 | 1.901 | 0.623 |
| a1_46_b5_2 | Answer 4, 5 or 6 from question A1 multiplied by answer 2 from question B5 | 6.185 | 5.234 | 6.533 | 7.353 | 6.644 | 7.047 |
| brk_soc_1 | Answer 1 from question Brk_soc | 6.294 | 7.063 | 5.711 | 11.761 | 11.857 | 10.900 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|--------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| brk_soc_2_b5_3 | Answer 2 from question Brk_soc multiplied by answer 3 from question B5 | 2.091 | 0.572 | -0.323 | 3.039 | 1.803 | 0.384 |
| brk_soc_3_b5_3 | Answer 3 from question 3 multiplied by answer 3 from question B5 | -1.295 | -0.074 | -1.535 | 0.279 | 0.354 | -2.101 |
| b42_04rec_t2b | Top 2 box answer from question B42_04rec | 1.303 | 16.907 | 19.278 | 16.832 | 17.047 | 17.369 |
| brk_soc_4 | Answer 4 from question Brk_soc | 5.253 | 7.713 | 7.745 | 10.287 | 9.540 | 11.031 |
| brk_soc_3 | Answer 3 from question Brk_soc | 16.105 | 11.887 | 13.139 | 12.586 | 12.960 | 12.744 |
| brk_soc_2 | Answer 2 from question Brk_soc | 19.481 | 25.317 | 27.948 | 30.936 | 28.861 | 30.911 |
| a1_6_f12_7 | Answer 6 from question A1 multiplied by answer 7 from question F12 | -4.785 | -0.811 | -2.399 | -5.246 | -1.090 | -1.218 |
| a1_46_f12_7 | Answer 4, 5 or 6 from question A1 multiplied by answer 7 from question F12 | 10.352 | 4.035 | 7.084 | 4.735 | 4.394 | 3.770 |
| brk_soc_2_b5_2to11 | Answer 2 from question Brk_soc multiplied by answer codes 3 to 11 from question B5 | -3.108 | 0.937 | 2.561 | -0.638 | 0.960 | 3.172 |
| brk_soc_3_b5_2to11 | Answer 3 from question Brk_soc multiplied by answer codes 3 to 11 from question B5 | -1.189 | 1.424 | 2.982 | 2.927 | 3.390 | 6.004 |
| B17_12rec_b5_2to11 | Answer from question B17_12rec multiplied by answer codes 3 to 11 from question B5 | 0.052 | 0.216 | 0.873 | 0.396 | 0.474 | 5.987 |
| B19rec_10_b5_2to11 | Answer codes 10 to 15 from question B19rec multiplied by answer codes 3 to 11 from question B5 | -0.843 | 1.880 | 1.305 | 2.412 | 1.835 | 4.184 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|-------------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| b42_04rec_B17_11rec | Answer from question B42_04 multiplied by answer from question B17_11 | 0.097 | 0.027 | 0.197 | 0.262 | -0.064 | 1.478 |
| a1_56_brk_soc_2 | Answer 5 or 6 from question A1 multiplied by answer 2 from question Brk_soc | -0.682 | -0.725 | -4.599 | -1.405 | -2.649 | -2.504 |
| b42_04rec_t2b_brk_soc_2 | Top 2 box answer from question B42_04rec multiplied by answer 2 from question Brk_soc | 3.009 | 6.968 | 6.068 | 8.401 | 7.655 | 8.452 |
| f5_b_3 | Answer 3 from question F5_b | 5.786 | 7.248 | 5.961 | 5.736 | 7.040 | 7.562 |
| f5_b_5 | Answer 5 from question F5_b | 34.911 | 19.442 | 29.651 | 30.686 | 24.925 | 24.629 |
| f5_b_6 | Answer 6 from question F5_b | 37.867 | 17.814 | 29.721 | 29.765 | 23.195 | 23.586 |
| f5_b_7 | Answer 7 from question F5_b | 23.404 | 10.305 | 20.146 | 23.897 | 13.168 | 12.269 |
| B2_B39_3 | Answer 3 from question B2_B39 | 49.456 | 10.188 | 11.589 | 12.659 | 11.856 | 12.744 |
| F12_6 | Answer 6 from question F12 | 4.566 | 3.888 | 6.639 | 2.946 | 2.578 | 3.661 |
| A1_6 | Answer 6 from question A1 | 3.689 | 1.975 | 3.022 | 5.171 | 2.093 | 1.866 |
| B39b_3 | Answer 3 from question B39b | 24.444 | 46.303 | 43.712 | 44.216 | 45.388 | 44.454 |
| F12_1 | Answer 1 from question F12 | 1.804 | 0.961 | 1.600 | 1.153 | 3.190 | 1.424 |
| a1_13_f12_4 | Answer 1, 2 or 3 from question A1 multiplied by answer 4 from question F12 | 1.013 | 1.954 | 1.618 | 0.714 | 1.110 | 1.364 |
| a1_56_f12_2 | Answer 5 or 6 from question A1 multiplied by answer 2 from question F12 | 2.118 | 2.038 | 1.419 | 2.135 | 2.058 | 1.225 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|---------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| a1_6_brk_soc_4 | Answer 1 from question A1 multiplied by answer 4 from question Brk_soc | -1.459 | -3.134 | -0.953 | -2.450 | -1.820 | -1.605 |
| B19rec_89_b42_04rec | Answer 8 or 9 from question B19rec multiplied by answer from question B42_04rec | 0.252 | 0.938 | 0.654 | 0.850 | 0.963 | 0.746 |
| Constant | | -49.554 | -30.253 | -37.910 | -39.058 | -35.776 | -39.039 |

Table 2b. Summary of coefficients for non-car owners model

| Variable name | Variable description | Model Coefficients Segment 7 | Model Coefficients Segment 8 | Model Coefficients Segment 9 |
|----------------------------|--|------------------------------|------------------------------|------------------------------|
| b31_arec_t2b_b42_08rec_t2b | Top 2 box answer from question B31_arec multiplied by top 2 box answer from question B42_08rec | -0.443 | -1.502 | 0.795 |
| b31_arec_b2b_CN76rec_4 | Bottom 2 box answer from question B31_arec multiplied by answer 4 from question Cn76_rec | 2.810 | 3.282 | 3.226 |
| b42_08rec_t2b_cn76_4 | Top 2 box answer from question B42_08rec multiplied by answer 4 from question Cn76 | -3.524 | 0.205 | -1.424 |
| f5_b_6_B2_B39_1 | Answer 6 from question F5_b multiplied by answer 1 from question B2_B39_1 | -12.392 | -7.649 | -8.947 |
| b42_08rec_t2b_b2_4 | Top 2 box answer from question B42_08rec multiplied by answer 4 from question B2 | -7.485 | -10.024 | -14.095 |

| | | | | |
|----------------------|---|--------|--------|--------|
| f15_1_cn76_4 | Answer 1 from question F15 multiplied by answer 4 from question Cn76 | 6.090 | 3.350 | 1.450 |
| B47_B50_1_b39b_1 | Answer 1 from question B47_B50 multiplied by answer 1 from question B39b | 10.704 | 6.790 | 6.636 |
| CN76rec_4_b39b_1 | Answer 4 from question Cn76rec multiplied by answer 1 from question B39b | -3.532 | -0.334 | 0.105 |
| f15_1_b42_08rec_t2_b | Answer 1 from question F15 multiplied by top 2 box answer from question B42_08rec | -2.319 | 1.859 | -3.080 |
| f15_2_CN76rec_4 | Answer 2 from question F15 multiplied by answer 4 from question Cn76rec | 2.510 | 1.070 | 0.409 |
| b47_2_b2_4 | Answer 2 from question B47 multiplied by answer 4 from question B2 | 1.010 | 3.360 | 1.590 |
| f5_b_5_b2_4 | Answer 5 from question F5_b multiplied by answer 4 from question B2 | -4.425 | 0.785 | 2.273 |
| b46_top3_b39b_3 | Answer 1 from question B46 multiplied by answer 3 from question B39b | 2.645 | 0.878 | 2.340 |
| f5_b_6_b46_top3 | Answer 6 from question F5_b multiplied by answer 1, 2 or 3 from question B46 | 2.957 | -2.546 | -0.777 |
| b31_arec_b46_top1 | Answer from question B31_arec multiplied by answer 1 from question B46 | 0.449 | 0.050 | 0.546 |
| cn76_4_B2_B39_1 | Answer 4 from question Cn76 multiplied by answer 1 from question B2_B39_1 | -2.274 | -5.733 | 0.072 |
| brk_soc_4_B2_B39_1 | Answer 4 from question Brk_soc multiplied by answer 1 from question B2_B39 | 2.057 | 4.399 | 0.261 |
| brk_soc_3_B2_B39_1 | Answer 3 from question Brk_soc multiplied by answer 1 from question B2_B39 | 1.609 | 4.381 | -0.167 |

| | | | | |
|-------------------|---|---------|---------|---------|
| b42_08rec_t2b | Top 2 box answer from question B42_08rec | 9.831 | 12.453 | 15.677 |
| f5_b_5_b39b_3 | Answer 5 from question f5_b multiplied by answer 3 from question B39b_3 | -11.696 | -6.686 | -8.334 |
| f15_2_b39b_3 | Answer 2 from question F15 multiplied by answer 3 from question B39b | -1.953 | -0.476 | -1.523 |
| brk_soc_6 | Answer 6 from question Brk_soc | 3.278 | 2.664 | 5.281 |
| B2_B39_1 | Answer 1 from question B2_B39 | 9.943 | 16.396 | 12.914 |
| f15_2_b47_2 | Answer 2 from question F15 multiplied by answer 2 from question B47 | 0.840 | 0.471 | -0.973 |
| f12_6 | Answer 6 from question F12 | 3.711 | 0.066 | 4.424 |
| f12_7 | Answer 7 from question F12 | 5.240 | 0.238 | 3.794 |
| f5_b_6 | Answer 6 from question F5_b | 16.392 | 12.661 | 8.839 |
| f5_b_5 | Answer 5 from question F5_b | 20.890 | 9.701 | 7.100 |
| f5_b_7 | Answer 7 from question F5_b | 21.328 | 7.104 | 6.087 |
| f12_1 | Answer 1 from question F12 | 2.421 | 6.496 | 1.169 |
| f12_2 | Answer 2 from question F12 | 2.134 | 4.619 | 1.559 |
| f5_b_2 | Answer 2 from question F5_b | 1.857 | 1.838 | 2.279 |
| b31_arec_f15_2 | Answer from question B31_arec multiplied by answer 2 from question F15 | 0.625 | 0.798 | 0.569 |
| f5_b_6_b31_1_arec | Answer 6 from question F5_b multiplied by answer from question B31_arec | 1.128 | -0.258 | -0.175 |
| Constant | | -18.717 | -13.654 | -12.481 |

Table 6. 2010 vs. 2022 data - comparison of golden questions distributions

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|---|----------------------------------|----------------------------------|--------------|
| A1 | Up to 1 year - How long have you lived in your current home? | 12.6% | 6.9% | -5.7% |
| A1 | More than 1 year, up to 2 years - How long have you lived in your current home? | 7.3% | 8.1% | 0.8% |
| A1 | More than 2 years, up to 5 years - How long have you lived in your current home? | 15.8% | 16.6% | 0.7% |
| A1 | More than 5 years, up to 10 years - How long have you lived in your current home? | 16.6% | 18.3% | 1.7% |
| A1 | More than 10 years, up to 20 years - How long have you lived in your current home? | 22.3% | 19.9% | -2.4% |
| A1 | More than 20 years - How long have you lived in your current home? | 25.2% | 28.3% | 3.1% |
| A1 | Don't know - How long have you lived in your current home? | 0.1% | 0.9% | 0.8% |
| A1 | Refused - How long have you lived in your current home? | 0.0% | 1.0% | 0.9% |
| B2 | Go out on foot - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 9.1% | 17.2% | 8.1% |
| B2 | Use local buses - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 6.0% | 12.1% | 6.1% |
| B2 | Get in or out of a car - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 4.7% | 8.5% | 3.8% |
| B2 | None of these - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 89.2% | 75.3% | -13.9% |
| B5 | 0 - How many cars/vans does your household own or have continuous use of at present? | 18.3% | 15.0% | -3.3% |
| B5 | 1 - How many cars/vans does your household own or have continuous use of at present? | 38.2% | 46.2% | 8.0% |
| B5 | 2 - How many cars/vans does your household own or have continuous use of at present? | 30.9% | 24.4% | -6.5% |
| B5 | 3 - How many cars/vans does your household own or have continuous use of at present? | 8.4% | 4.8% | -3.6% |

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|--|----------------------------------|----------------------------------|--------------|
| B5 | 4 - How many cars/vans does your household own or have continuous use of at present? | 3.0% | 1.7% | -1.3% |
| B5 | 5 - How many cars/vans does your household own or have continuous use of at present? | 0.8% | 0.6% | -0.2% |
| B5 | 6 - How many cars/vans does your household own or have continuous use of at present? | 0.2% | 0.2% | 0.0% |
| B5 | 7 - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 0.1% | 0.1% |
| B5 | 8 - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 0.1% | 0.1% |
| B5 | 9 - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 0.6% | 0.5% |
| B5 | Refused - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 1.8% | 1.8% |
| B5 | Don't Know - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 4.5% | 4.5% |
| B17 | Speed/performance - Features important when buying a car or van | 13.0% | 21.7% | 8.6% |
| B17 | Style/design - Features important when buying a car or van | 21.8% | 35.0% | 13.2% |
| B19 | 0 - Miles personally driven per year | 33.8% | 32.3% | -1.5% |
| B19 | 1-2,999 miles - Miles personally driven per year | 9.1% | 16.8% | 7.7% |
| B19 | 1-4,999 miles - Miles personally driven per year | 18.9% | 30.5% | 11.6% |
| B19 | 5,000-8,999 miles - Miles personally driven per year | 20.5% | 16.2% | -4.3% |
| B19 | 9,000 miles or more - Miles personally driven per year | 24.5% | 17.0% | -7.5% |
| B46X | (T2B) - Agreement with: In general, I think that successful people tend to travel by car rather than by bus | 52.5% | 47.7% | -4.8% |
| B39B | Yes - impossible - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 9.7% | 10.5% | 0.7% |
| B39B | Yes - difficult - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 6.1% | 14.4% | 8.3% |

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|--|----------------------------------|----------------------------------|--------------|
| B39B | No - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 83.9% | 71.1% | -12.8% |
| B39B | Don't know - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 0.3% | 4.0% | 3.8% |
| B2/B39b | Respondent has no mobility or disability issues - Mobility / disability issues | 81.5% | 67.8% | -13.7% |
| B2/B39b | Respondent has a disability or long standing health problem that makes it difficult (but not impossible) to ride a bicycle but no problems going out on foot, or use local buses, or get in or out of a car - Mobility / disability issues | 4.4% | 5.7% | 1.3% |
| B2/B39b | Respondent has a disability or long standing health problem that makes it difficult to go out on foot, or use local buses, or get in or out of a car, or makes it impossible to ride a bicycle - Mobility / disability issues | 14.1% | 26.6% | 12.5% |
| B46x | (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths | 52.4% | 34.4% | -18.0% |
| B46x | (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths (total sample) | 43.8% | 34.4% | -9.4% |
| B46x | (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | 44.9% | 27.9% | -17.0% |
| B46x | (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) (total sample) | 37.6% | 27.9% | -9.7% |
| B46 | Top 1 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 13.9% | 10.3% | -3.6% |
| B46 | Top 3 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 83.9% | 63.8% | -20.1% |
| B47 | Short-haul international - to somewhere in Europe including the Republic of Ireland - What types of flights, if any, starting from the UK have you taken in the last 12 months? | 35.6% | 24.8% | -10.8% |
| B50 | 0 - Number of short-haul flights taken in last 12 months (all respondents) | 64.4% | 75.2% | 10.8% |
| B50 | 1 - Number of short-haul flights taken in last 12 months (all respondents) | 18.6% | 13.1% | -5.5% |
| B50 | 2 - Number of short-haul flights taken in last 12 months (all respondents) | 8.9% | 7.9% | -1.0% |

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|---|----------------------------------|----------------------------------|--------------|
| B50 | 3 - Number of short-haul flights taken in last 12 months (all respondents) | 8.1% | 3.8% | -4.3% |
| UK01SG | A - Upper middle class - Social class | 5.5% | 3.3% | -2.2% |
| UK01SG | B - Middle class - Social class | 19.7% | 23.4% | 3.7% |
| UK01SG | C1 - Lower middle class - Social class | 31.9% | 29.4% | -2.5% |
| UK01SG | C2 - Skilled working class - Social class | 21.7% | 20.5% | -1.3% |
| UK01SG | D - Working class - Social class | 12.8% | 13.5% | 0.6% |
| UK01SG | E - Lower level of subsistence - Social class | 8.3% | 9.9% | 1.6% |
| CN76 | Regularly - Frequency of use of home delivery for non-food shopping | 21.4% | 37.2% | 15.8% |
| CN76 | Sometimes - Frequency of use of home delivery for non-food shopping | 28.8% | 43.7% | 15.0% |
| CN76 | Have only done this once or twice - Frequency of use of home delivery for non-food shopping | 5.6% | 10.3% | 4.6% |
| CN76 | Never - Frequency of use of home delivery for non-food shopping | 44.1% | 7.7% | -36.4% |
| CN76 | Don't know - Frequency of use of home delivery for non-food shopping | 0.1% | 1.1% | 1.0% |
| RESP_AGE | 16-20 - Age | 8.0% | 5.2% | -2.8% |
| RESP_AGE | 21-29 - Age | 15.4% | 14.2% | -1.2% |
| RESP_AGE | 30-39 - Age | 16.6% | 18.4% | 1.8% |
| RESP_AGE | 40-49 - Age | 18.5% | 15.2% | -3.3% |
| RESP_AGE | 50-59 - Age | 14.9% | 16.3% | 1.4% |
| RESP_AGE | 60-69 - Age | 12.9% | 15.1% | 2.3% |
| RESP_AGE | 70+ - Age | 13.7% | 15.6% | 1.9% |

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|---|----------------------------------|----------------------------------|--------------|
| F12 | University Higher Degree (e.g. MSc; PhD) - Education | 6.7% | 13.3% | 6.7% |
| F12 | First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE - Education | 13.4% | 21.9% | 8.5% |
| F12 | Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) - Education | 8.4% | 8.2% | -0.2% |
| F12 | A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent - Education | 21.3% | 21.4% | 0.1% |
| F12 | GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent - Education | 22.4% | 20.3% | -2.1% |
| F12 | GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent - Education | 4.4% | 7.1% | 2.8% |
| F12 | None of the above - Education | 22.8% | 6.6% | -16.2% |
| F12 | Refused - Education | 0.6% | 1.0% | 0.4% |
| F15 | Living comfortably on present income - Household income | 44.2% | 25.1% | -19.1% |
| F15 | Coping on present income - Household income | 42.0% | 45.1% | 3.1% |
| F15 | Finding it difficult on present income - Household income | 10.7% | 19.7% | 9.0% |
| F15 | Finding it very difficult on present income - Household income | 3.1% | 7.9% | 4.8% |
| F15 | Don't know - Household income | 0.0% | 2.2% | 2.2% |
| GENDER | Male - Gender | 48.9% | 49.0% | 0.2% |
| GENDER | Female - Gender | 51.1% | 51.0% | -0.2% |
| ETHNICITY | White English/Welsh/Scottish/Northern Irish/British - What is your ethnic group? | 83.9% | 82.4% | -1.5% |
| ETHNICITY | Irish - What is your ethnic group? | 0.0% | 1.1% | 1.1% |
| ETHNICITY | Gypsy/Irish Traveller - What is your ethnic group? | 0.0% | 0.2% | 0.2% |

| Question number | Question | 2010 original segments (N=3,934) | 2022 assigned segments (N=5,000) | 2022 vs 2010 |
|-----------------|---|----------------------------------|----------------------------------|--------------|
| ETHNICITY | Any other White background - What is your ethnic group? | 5.5% | 3.9% | -1.6% |
| ETHNICITY | White and Black Caribbean - What is your ethnic group? | 0.2% | 0.8% | 0.6% |
| ETHNICITY | White and Black African - What is your ethnic group? | 0.2% | 0.6% | 0.4% |
| ETHNICITY | White and Asian - What is your ethnic group? | 0.0% | 1.0% | 1.0% |
| ETHNICITY | Any other mixed/multiple ethnic group - What is your ethnic group? | 0.2% | 0.7% | 0.5% |
| ETHNICITY | Indian - What is your ethnic group? | 2.2% | 1.9% | -0.3% |
| ETHNICITY | Pakistani - What is your ethnic group? | 1.9% | 1.4% | -0.5% |
| ETHNICITY | Bangladeshi - What is your ethnic group? | 0.5% | 0.8% | 0.3% |
| ETHNICITY | Chinese - What is your ethnic group? | 0.4% | 0.6% | 0.2% |
| ETHNICITY | Any other Asian background - What is your ethnic group? | 1.0% | 0.6% | -0.4% |
| ETHNICITY | African - What is your ethnic group? | 1.6% | 1.2% | -0.4% |
| ETHNICITY | Caribbean - What is your ethnic group? | 1.3% | 0.8% | -0.5% |
| ETHNICITY | Any other Black/ African/ Caribbean background - What is your ethnic group? | 0.3% | 0.1% | -0.2% |
| ETHNICITY | Arab - What is your ethnic group? | 0.0% | 0.2% | 0.2% |
| ETHNICITY | Any other ethnic group - What is your ethnic group? | 0.7% | 0.4% | -0.3% |
| ETHNICITY | Prefer not to say - What is your ethnic group? | 0.1% | 1.2% | 1.1% |

Table8a. Original segment profiles for 2010

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | 3923 | 348 | 836 | 468 | 352 | 676 | 522 | 244 | 276 | 202 |
| frequency: | | 8.9% | 21.3% | 11.9% | 9.0% | 17.2% | 13.3% | 6.2% | 7.0% | 5.1% |
| Up to 1 year - How long have you lived in your current home? | 12.6% | 3.5% | 25.8% | 2.0% | 0.9% | 6.8% | 8.4% | 0.9% | 37.5% | 29.7% |
| More than 1 year, up to 2 years - How long have you lived in your current home? | 7.3% | 2.2% | 11.4% | 3.5% | 0.6% | 7.4% | 4.9% | 3.4% | 14.6% | 20.6% |
| More than 2 years, up to 5 years - How long have you lived in your current home? | 15.8% | 9.1% | 21.4% | 6.7% | 3.1% | 24.8% | 18.3% | 6.4% | 18.8% | 18.8% |
| More than 5 years, up to 10 years - How long have you lived in your current home? | 16.6% | 13.0% | 17.6% | 13.3% | 9.5% | 25.9% | 22.8% | 9.9% | 9.7% | 9.1% |
| More than 10 years, up to 20 years - How long have you lived in your current home? | 22.3% | 23.9% | 19.7% | 25.2% | 22.1% | 25.1% | 27.8% | 19.8% | 11.2% | 18.5% |
| More than 20 years - How long have you lived in your current home? | 25.2% | 48.3% | 4.0% | 49.2% | 63.8% | 10.1% | 17.9% | 58.5% | 8.2% | 3.3% |
| Don't know - How long have you lived in your current home? | 0.1% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 1.1% | 0.0% | 0.0% |
| Refused - How long have you lived in your current home? | 0.0% | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Go out on foot - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 9.1% | 59.5% | 1.0% | 0.2% | 0.3% | 0.4% | 0.8% | 46.6% | 1.0% | 8.5% |
| Use local buses - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 6.0% | 36.6% | 0.9% | 0.0% | 0.2% | 0.2% | 0.8% | 34.7% | 0.4% | 5.3% |
| Get in or out of a car - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 4.7% | 23.5% | 1.1% | 0.0% | 0.5% | 1.6% | 1.2% | 25.4% | 0.1% | 6.2% |
| None of these - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 89.2% | 31.8% | 98.7% | 99.8% | 99.1% | 98.4% | 98.1% | 48.4% | 98.5% | 89.2% |
| 0 - How many cars/vans does your household own or have continuous use of at present? | 18.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 99.2% | 99.9% | 99.2% |
| 1 - How many cars/vans does your household own or have continuous use of at present? | 38.2% | 69.2% | 62.3% | 60.6% | 52.5% | 36.4% | 4.1% | 0.0% | 0.0% | 0.0% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|--|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 2 - How many cars/vans does your household own or have continuous use of at present? | 30.9% | 21.9% | 32.3% | 30.6% | 40.9% | 53.1% | 42.4% | 0.0% | 0.0% | 0.0% |
| 3 - How many cars/vans does your household own or have continuous use of at present? | 8.4% | 6.2% | 4.2% | 4.9% | 4.0% | 7.9% | 34.8% | 0.0% | 0.0% | 0.0% |
| 4 - How many cars/vans does your household own or have continuous use of at present? | 3.0% | 1.3% | 1.0% | 2.1% | 2.0% | 2.4% | 13.8% | 0.0% | 0.0% | 0.0% |
| 5 - How many cars/vans does your household own or have continuous use of at present? | 0.8% | 0.5% | 0.0% | 1.4% | 0.0% | 0.2% | 3.9% | 0.0% | 0.0% | 0.0% |
| 6 - How many cars/vans does your household own or have continuous use of at present? | 0.2% | 0.0% | 0.0% | 0.2% | 0.5% | 0.0% | 1.0% | 0.0% | 0.0% | 0.0% |
| 7 - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 8 - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 9 - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Refused - How many cars/vans does your household own or have continuous use of at present? | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% | 0.0% | 0.0% |
| Don't Know - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% | 0.1% | 0.8% |
| Speed/performance - Features important when buying a car or van | 13.0% | 6.4% | 6.8% | 5.1% | 14.1% | 4.9% | 39.9% | 0.0% | 0.0% | 0.0% |
| Style/design - Features important when buying a car or van | 21.8% | 14.8% | 14.7% | 11.6% | 17.3% | 11.8% | 57.8% | 0.0% | 0.0% | 0.0% |
| 0 - Miles personally driven per year | 33.8% | 37.7% | 36.3% | 13.1% | 14.5% | 4.5% | 5.3% | 99.4% | 100.0% | 100.0% |
| 1-2,999 miles - Miles personally driven per year | 9.1% | 17.2% | 9.1% | 17.4% | 15.5% | 9.9% | 3.2% | 0.6% | 0.0% | 0.0% |
| 1-4,999 miles - Miles personally driven per year | 18.9% | 27.1% | 19.9% | 33.0% | 33.3% | 21.0% | 12.8% | 0.6% | 0.0% | 0.0% |
| 5,000-8,999 miles - Miles personally driven per year | 20.5% | 19.6% | 19.9% | 29.8% | 23.5% | 28.4% | 29.8% | 0.0% | 0.0% | 0.0% |
| 9,000 miles or more - Miles personally driven per year | 24.5% | 13.6% | 17.8% | 21.3% | 28.3% | 45.3% | 49.9% | 0.0% | 0.0% | 0.0% |
| (T2B) - Agreement with: In general, I think that successful people tend to travel by car rather than by bus | 52.5% | 57.3% | 50.5% | 63.5% | 57.8% | 39.7% | 51.5% | 62.0% | 41.5% | 66.6% |
| Yes - impossible - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 9.7% | 65.3% | 0.1% | 0.0% | 0.3% | 0.0% | 0.1% | 57.5% | 0.6% | 5.4% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|--|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Yes - difficult - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 6.1% | 21.4% | 2.2% | 7.3% | 13.5% | 1.8% | 1.7% | 11.5% | 2.2% | 4.1% |
| No - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 83.9% | 12.6% | 97.6% | 92.7% | 85.3% | 98.2% | 98.2% | 30.4% | 97.1% | 89.9% |
| Don't know - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 0.3% | 0.7% | 0.2% | 0.0% | 0.9% | 0.0% | 0.0% | 0.6% | 0.1% | 0.7% |
| Respondent has no mobility or disability issues - Mobility / disability issues | 81.5% | 0.0% | 96.7% | 92.7% | 86.2% | 96.7% | 96.8% | 23.3% | 96.0% | 84.5% |
| Respondent has a disability or long standing health problem that makes it difficult (but not impossible) to ride a bicycle but no problems going out on foot, or use local buses, or get in or out of a car - Mobility / disability issues | 4.4% | 8.7% | 2.0% | 7.1% | 12.9% | 1.7% | 1.2% | 8.2% | 2.1% | 2.4% |
| Respondent has a disability or long standing health problem that makes it difficult to go out on foot, or use local buses, or get in or out of a car, or makes it impossible to ride a bicycle - Mobility / disability issues | 14.1% | 91.3% | 1.3% | 0.2% | 1.0% | 1.6% | 2.1% | 68.5% | 1.9% | 13.1% |
| (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths | 52.4% | 34.5% | 50.7% | 53.6% | 35.9% | 68.4% | 47.7% | 33.2% | 53.6% | 59.3% |
| (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths (total sample) | 43.8% | 10.7% | 45.3% | 51.5% | 32.4% | 66.9% | 45.9% | 11.6% | 48.1% | 47.7% |
| (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | 44.9% | 18.5% | 47.1% | 38.5% | 28.3% | 56.0% | 53.0% | 15.9% | 49.7% | 40.5% |
| (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) (total sample) | 37.6% | 5.7% | 42.1% | 37.0% | 25.6% | 54.8% | 51.1% | 5.5% | 44.5% | 32.6% |
| Top 1 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 13.9% | 8.6% | 10.6% | 17.0% | 14.0% | 13.2% | 13.1% | 13.4% | 29.2% | 13.5% |
| Top 3 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 83.9% | 90.3% | 81.9% | 86.9% | 87.4% | 80.4% | 81.3% | 89.6% | 86.5% | 76.9% |
| Short-haul international - to somewhere in Europe including the Republic of Ireland - What types of flights, if any, starting from the UK have you taken in the last 12 months? | 35.6% | 22.2% | 31.5% | 31.8% | 44.1% | 52.8% | 49.0% | 5.8% | 37.0% | 11.0% |
| 0 - Number of short-haul flights taken in last 12 months (all respondents) | 64.4% | 77.8% | 68.5% | 68.2% | 55.9% | 47.2% | 51.0% | 94.2% | 63.0% | 89.0% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1 - Number of short-haul flights taken in last 12 months (all respondents) | 18.6% | 14.9% | 18.0% | 20.2% | 19.8% | 23.7% | 25.9% | 3.5% | 15.6% | 7.9% |
| 2 - Number of short-haul flights taken in last 12 months (all respondents) | 8.9% | 5.4% | 8.5% | 7.7% | 14.6% | 12.7% | 9.7% | 1.5% | 10.1% | 1.6% |
| 3 - Number of short-haul flights taken in last 12 months (all respondents) | 8.1% | 1.9% | 5.1% | 3.9% | 9.8% | 16.4% | 13.4% | 0.9% | 11.4% | 1.4% |
| A - Upper middle class - Social class | 5.5% | 3.0% | 0.9% | 0.0% | 15.4% | 13.3% | 9.3% | 1.0% | 1.5% | 0.0% |
| B - Middle class - Social class | 19.7% | 14.9% | 9.6% | 4.3% | 36.7% | 40.2% | 35.1% | 5.9% | 8.2% | 0.0% |
| C1 - Lower middle class - Social class | 31.9% | 35.5% | 34.6% | 20.9% | 36.0% | 37.8% | 27.8% | 22.8% | 53.2% | 6.1% |
| C2 - Skilled working class - Social class | 21.7% | 21.5% | 32.4% | 39.0% | 10.5% | 8.6% | 22.1% | 19.3% | 19.7% | 6.3% |
| D - Working class - Social class | 12.8% | 13.1% | 16.7% | 29.1% | 1.3% | 0.0% | 5.5% | 26.4% | 12.7% | 24.6% |
| E - Lower level of subsistence - Social class | 8.3% | 11.9% | 5.8% | 6.7% | 0.2% | 0.1% | 0.2% | 24.6% | 4.7% | 63.1% |
| Regularly - Frequency of use of home delivery for non-food shopping | 21.4% | 10.0% | 19.4% | 6.9% | 15.3% | 46.4% | 38.9% | 2.7% | 19.3% | 3.4% |
| Sometimes - Frequency of use of home delivery for non-food shopping | 28.8% | 23.7% | 34.8% | 20.4% | 32.4% | 36.7% | 32.6% | 14.2% | 33.0% | 6.4% |
| Have only done this once or twice - Frequency of use of home delivery for non-food shopping | 5.6% | 7.0% | 6.1% | 5.5% | 6.1% | 4.2% | 7.5% | 2.5% | 8.0% | 2.2% |
| Never - Frequency of use of home delivery for non-food shopping | 44.1% | 59.3% | 39.3% | 67.2% | 46.2% | 12.6% | 20.5% | 80.7% | 39.7% | 87.9% |
| Don't know - Frequency of use of home delivery for non-food shopping | 0.1% | 0.0% | 0.3% | 0.0% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | 0.0% |
| 16-20 - Age | 8.0% | 1.1% | 20.0% | 0.0% | 0.0% | 5.3% | 8.8% | 0.0% | 16.1% | 9.0% |
| 21-29 - Age | 15.4% | 0.0% | 32.7% | 0.0% | 0.3% | 9.8% | 16.3% | 0.0% | 38.7% | 35.5% |
| 30-39 - Age | 16.6% | 1.3% | 29.6% | 2.8% | 0.4% | 27.1% | 20.1% | 0.6% | 18.5% | 21.6% |
| 40-49 - Age | 18.5% | 11.3% | 14.1% | 17.4% | 2.8% | 37.6% | 25.3% | 5.1% | 12.3% | 22.4% |
| 50-59 - Age | 14.9% | 14.7% | 3.3% | 28.6% | 21.4% | 16.7% | 21.0% | 12.1% | 8.9% | 9.2% |
| 60-69 - Age | 12.9% | 28.8% | 0.1% | 31.4% | 38.7% | 3.3% | 7.1% | 18.5% | 4.7% | 1.1% |
| 70+ - Age | 13.7% | 42.7% | 0.2% | 19.7% | 36.3% | 0.2% | 1.3% | 63.7% | 0.8% | 1.1% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| University Higher Degree (e.g. MSc; PhD) - Education | 6.7% | 2.0% | 4.1% | 0.0% | 6.9% | 18.1% | 6.8% | 0.6% | 13.3% | 0.2% |
| First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE - Education | 13.4% | 7.2% | 10.0% | 0.0% | 17.9% | 31.5% | 15.6% | 2.0% | 17.1% | 3.0% |
| Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) - Education | 8.4% | 9.9% | 7.0% | 1.4% | 18.5% | 10.9% | 11.7% | 4.5% | 6.3% | 1.3% |
| A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent - Education | 21.3% | 10.4% | 29.6% | 7.8% | 21.2% | 23.9% | 29.4% | 6.5% | 34.7% | 8.0% |
| GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent - Education | 22.4% | 19.8% | 31.6% | 20.3% | 26.4% | 13.5% | 25.1% | 11.0% | 22.1% | 24.1% |
| GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent - Education | 4.4% | 3.6% | 6.2% | 7.3% | 1.5% | 0.7% | 4.2% | 2.4% | 3.6% | 12.4% |
| None of the above - Education | 22.8% | 45.4% | 10.6% | 63.1% | 6.4% | 0.8% | 6.9% | 72.9% | 2.9% | 50.7% |
| Refused - Education | 0.6% | 1.6% | 0.9% | 0.1% | 1.1% | 0.6% | 0.4% | 0.2% | 0.0% | 0.2% |
| Living comfortably on present income - Household income | 44.2% | 38.2% | 33.4% | 36.2% | 67.3% | 56.3% | 64.9% | 38.7% | 30.6% | 7.9% |
| Coping on present income - Household income | 42.0% | 43.7% | 46.6% | 50.5% | 30.3% | 38.8% | 31.9% | 48.5% | 53.1% | 35.1% |
| Finding it difficult on present income - Household income | 10.7% | 13.9% | 15.1% | 11.4% | 2.5% | 4.7% | 2.6% | 10.3% | 14.9% | 35.4% |
| Finding it very difficult on present income - Household income | 3.1% | 4.3% | 4.9% | 2.0% | 0.0% | 0.2% | 0.6% | 2.5% | 1.4% | 21.6% |
| Don't know - Household income | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Male - Gender | 48.9% | 42.6% | 45.2% | 57.1% | 51.7% | 47.4% | 59.5% | 30.1% | 54.7% | 43.0% |
| Female - Gender | 51.1% | 57.4% | 54.8% | 42.9% | 48.3% | 52.6% | 40.5% | 69.9% | 45.3% | 57.0% |
| White English/Welsh/Scottish/Northern Irish/British - What is your ethnic group? | 83.9% | 93.1% | 73.9% | 89.9% | 96.5% | 87.5% | 92.9% | 86.9% | 56.0% | 73.4% |
| Irish - What is your ethnic group? | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Gypsy/Irish Traveller - What is your ethnic group? | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Any other White background - What is your ethnic group? | 5.5% | 3.9% | 6.5% | 2.8% | 2.3% | 5.0% | 1.6% | 6.1% | 19.5% | 8.6% |
| White and Black Caribbean - What is your ethnic group? | 0.2% | 0.0% | 0.2% | 0.0% | 0.0% | 0.4% | 0.1% | 0.0% | 0.0% | 0.5% |
| White and Black African - What is your ethnic group? | 0.2% | 0.0% | 0.3% | 0.4% | 0.0% | 0.0% | 0.0% | 1.2% | 0.0% | 0.7% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|
| White and Asian - What is your ethnic group? | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Any other mixed/multiple ethnic group - What is your ethnic group? | 0.2% | 0.0% | 0.3% | 0.0% | 0.0% | 0.3% | 0.0% | 0.0% | 0.0% | 1.5% |
| Indian - What is your ethnic group? | 2.2% | 0.1% | 3.6% | 3.1% | 0.0% | 2.6% | 2.4% | 0.9% | 2.2% | 1.6% |
| Pakistani - What is your ethnic group? | 1.9% | 0.3% | 5.9% | 1.5% | 0.5% | 0.4% | 0.3% | 0.0% | 2.4% | 1.4% |
| Bangladeshi - What is your ethnic group? | 0.5% | 0.8% | 0.6% | 0.2% | 0.0% | 0.1% | 0.5% | 0.8% | 1.7% | 1.4% |
| Chinese - What is your ethnic group? | 0.4% | 0.0% | 0.4% | 0.0% | 0.0% | 1.1% | 0.0% | 0.0% | 1.7% | 0.2% |
| Any other Asian background - What is your ethnic group? | 1.0% | 0.8% | 2.4% | 0.3% | 0.2% | 0.1% | 0.0% | 0.2% | 3.5% | 2.3% |
| African - What is your ethnic group? | 1.6% | 0.6% | 3.5% | 0.1% | 0.0% | 0.1% | 0.7% | 1.6% | 5.1% | 4.3% |
| Caribbean - What is your ethnic group? | 1.3% | 0.1% | 1.2% | 0.5% | 0.0% | 1.3% | 1.3% | 1.3% | 4.8% | 2.4% |
| Any other Black/ African/ Caribbean background - What is your ethnic group? | 0.3% | 0.2% | 0.3% | 0.0% | 0.4% | 0.0% | 0.0% | 0.8% | 1.8% | 0.0% |
| Arab - What is your ethnic group? | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Any other ethnic group - What is your ethnic group? | 0.7% | 0.0% | 0.9% | 1.1% | 0.1% | 1.0% | 0.0% | 0.2% | 1.4% | 1.5% |
| Prefer not to say - What is your ethnic group? | 0.1% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.3% |

Table8b. Assigned segment profiles for 2022

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | 5000 | 835 | 777 | 287 | 835 | 610 | 592 | 258 | 538 | 267 |
| frequency: | | 16.7% | 15.5% | 5.7% | 16.7% | 12.2% | 11.8% | 5.2% | 10.8% | 5.3% |
| Up to 1 year - How long have you lived in your current home? | 6.9% | 4.2% | 14.3% | 3.0% | 0.6% | 5.6% | 8.2% | 1.7% | 12.1% | 12.3% |
| More than 1 year, up to 2 years - How long have you lived in your current home? | 8.1% | 5.7% | 18.4% | 5.2% | 1.0% | 8.5% | 8.1% | 4.5% | 10.5% | 9.5% |
| More than 2 years, up to 5 years - How long have you lived in your current home? | 16.6% | 13.8% | 25.2% | 10.3% | 2.6% | 27.3% | 22.6% | 8.3% | 15.9% | 21.9% |
| More than 5 years, up to 10 years - How long have you lived in your current home? | 18.3% | 20.5% | 18.4% | 11.1% | 9.9% | 29.2% | 20.6% | 15.4% | 17.7% | 20.1% |
| More than 10 years, up to 20 years - How long have you lived in your current home? | 19.9% | 21.3% | 15.1% | 21.7% | 19.6% | 22.5% | 23.1% | 20.9% | 19.5% | 14.8% |
| More than 20 years - How long have you lived in your current home? | 28.3% | 33.6% | 6.0% | 48.1% | 66.3% | 6.0% | 17.0% | 48.8% | 18.9% | 11.8% |
| Don't know - How long have you lived in your current home? | 0.9% | 0.3% | 1.4% | 0.6% | 0.0% | 0.3% | 0.3% | 0.0% | 2.2% | 5.0% |
| Refused - How long have you lived in your current home? | 1.0% | 0.4% | 1.2% | 0.0% | 0.0% | 0.6% | 0.2% | 0.4% | 3.3% | 4.6% |
| Go out on foot - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 17.2% | 66.9% | 1.2% | 0.4% | 0.0% | 3.5% | 4.6% | 45.6% | 5.6% | 35.0% |
| Use local buses - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 12.1% | 42.1% | 2.1% | 0.0% | 0.1% | 3.3% | 4.9% | 24.6% | 5.2% | 35.5% |
| Get in or out of a car - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 8.5% | 32.8% | 1.1% | 0.0% | 0.0% | 2.7% | 3.7% | 18.1% | 1.9% | 18.0% |
| None of these - Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? | 75.3% | 7.4% | 96.6% | 99.6% | 99.9% | 94.3% | 91.5% | 47.8% | 90.6% | 38.8% |
| 0 - How many cars/vans does your household own or have continuous use of at present? | 15.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 93.0% | 71.1% | 46.9% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1 - How many cars/vans does your household own or have continuous use of at present? | 46.2% | 64.2% | 74.2% | 74.7% | 70.9% | 54.3% | 10.2% | 0.0% | 0.0% | 0.0% |
| 2 - How many cars/vans does your household own or have continuous use of at present? | 24.4% | 23.1% | 20.9% | 22.7% | 26.2% | 42.9% | 53.9% | 0.0% | 0.0% | 0.0% |
| 3 - How many cars/vans does your household own or have continuous use of at present? | 4.8% | 6.9% | 2.8% | 2.3% | 1.8% | 1.8% | 21.8% | 0.0% | 0.0% | 0.0% |
| 4 - How many cars/vans does your household own or have continuous use of at present? | 1.7% | 2.4% | 1.0% | 0.4% | 0.4% | 0.0% | 9.0% | 0.0% | 0.0% | 0.0% |
| 5 - How many cars/vans does your household own or have continuous use of at present? | 0.6% | 1.7% | 0.3% | 0.0% | 0.2% | 0.1% | 1.7% | 0.0% | 0.0% | 0.0% |
| 6 - How many cars/vans does your household own or have continuous use of at present? | 0.2% | 0.1% | 0.1% | 0.0% | 0.5% | 0.0% | 0.9% | 0.0% | 0.0% | 0.0% |
| 7 - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% | 0.0% | 0.0% | 0.0% |
| 8 - How many cars/vans does your household own or have continuous use of at present? | 0.1% | 0.3% | 0.1% | 0.0% | 0.0% | 0.0% | 0.5% | 0.0% | 0.0% | 0.0% |
| 9 - How many cars/vans does your household own or have continuous use of at present? | 0.6% | 1.4% | 0.6% | 0.0% | 0.0% | 0.9% | 1.4% | 0.0% | 0.0% | 0.0% |
| Refused - How many cars/vans does your household own or have continuous use of at present? | 1.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 2.2% | 8.3% | 14.7% |
| Don't Know - How many cars/vans does your household own or have continuous use of at present? | 4.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 4.9% | 20.6% | 38.4% |
| Speed/performance - Features important when buying a car or van | 21.7% | 17.6% | 17.6% | 14.1% | 16.8% | 10.9% | 50.7% | 0.0% | 0.0% | 0.0% |
| Style/design - Features important when buying a car or van | 35.0% | 28.5% | 33.4% | 27.9% | 27.8% | 17.1% | 74.2% | 0.0% | 0.0% | 0.0% |
| 0 - Miles personally driven per year | 32.3% | 20.3% | 26.8% | 13.3% | 9.1% | 5.2% | 4.7% | 100.0% | 100.0% | 100.0% |
| 1-2,999 miles - Miles personally driven per year | 16.8% | 25.8% | 18.5% | 24.4% | 30.2% | 15.1% | 11.3% | 0.0% | 0.0% | 0.0% |
| 1-4,999 miles - Miles personally driven per year | 30.5% | 44.2% | 32.4% | 46.2% | 54.5% | 30.2% | 22.4% | 0.0% | 0.0% | 0.0% |
| 5,000-8,999 miles - Miles personally driven per year | 16.2% | 14.7% | 16.3% | 25.3% | 21.4% | 25.0% | 26.1% | 0.0% | 0.0% | 0.0% |
| 9,000 miles or more - Miles personally driven per year | 17.0% | 17.4% | 14.5% | 12.2% | 12.0% | 32.4% | 43.7% | 0.0% | 0.0% | 0.0% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|--|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| (T2B) - Agreement with: In general, I think that successful people tend to travel by car rather than by bus | 47.7% | 52.1% | 47.5% | 47.8% | 41.5% | 51.4% | 56.5% | 50.2% | 38.5% | 41.8% |
| Yes - impossible - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 10.5% | 39.3% | 0.4% | 0.4% | 0.1% | 2.0% | 3.2% | 37.9% | 4.0% | 14.9% |
| Yes - difficult - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 14.4% | 37.3% | 2.9% | 13.6% | 16.7% | 1.8% | 4.5% | 30.1% | 4.0% | 25.8% |
| No - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 71.1% | 21.6% | 91.3% | 84.3% | 79.3% | 93.0% | 89.5% | 27.0% | 85.7% | 50.1% |
| Don't know - Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? | 4.0% | 1.9% | 5.4% | 1.8% | 3.9% | 3.2% | 2.8% | 5.0% | 6.3% | 9.1% |
| Respondent has no mobility or disability issues - Mobility / disability issues | 67.8% | 0.0% | 93.7% | 86.1% | 83.2% | 92.9% | 89.2% | 25.4% | 88.4% | 31.0% |
| Respondent has a disability or long standing health problem that makes it difficult (but not impossible) to ride a bicycle but no problems going out on foot, or use local buses, or get in or out of a car - Mobility / disability issues | 5.7% | 0.0% | 2.9% | 13.6% | 16.7% | 1.4% | 2.2% | 12.3% | 1.9% | 7.2% |
| Respondent has a disability or long standing health problem that makes it difficult to go out on foot, or use local buses, or get in or out of a car, or makes it impossible to ride a bicycle - Mobility / disability issues | 26.6% | 100.0% | 3.4% | 0.4% | 0.1% | 5.7% | 8.6% | 62.3% | 9.7% | 61.8% |
| (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths | 34.4% | 30.1% | 37.2% | 32.0% | 15.4% | 59.6% | 48.7% | 10.2% | 35.2% | 34.1% |
| (T2B) - Agreement with: I would cycle (more) if there were more dedicated cycle paths (total sample) | 34.4% | 30.1% | 37.2% | 32.0% | 15.4% | 59.6% | 48.7% | 10.2% | 35.2% | 34.1% |
| (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | 27.9% | 27.5% | 30.9% | 23.0% | 13.7% | 41.9% | 37.1% | 5.4% | 29.6% | 36.3% |
| (T2B) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) (total sample) | 27.9% | 27.5% | 30.9% | 23.0% | 13.7% | 41.9% | 37.1% | 5.4% | 29.6% | 36.3% |
| Top 1 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 10.3% | 7.5% | 12.0% | 6.2% | 8.6% | 9.7% | 9.0% | 9.4% | 18.4% | 12.7% |
| Top 3 - How safe are trains relative to other modes (in terms of risk of being a victim of crime) | 63.8% | 58.1% | 66.7% | 56.9% | 66.5% | 68.6% | 67.7% | 56.9% | 65.1% | 57.7% |
| Short-haul international - to somewhere in Europe including the Republic of Ireland - What types of flights, if | 24.8% | 24.3% | 26.5% | 14.9% | 20.4% | 31.7% | 34.5% | 6.1% | 28.2% | 18.8% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| any, starting from the UK have you taken in the last 12 months? | | | | | | | | | | |
| 0 - Number of short-haul flights taken in last 12 months (all respondents) | 75.2% | 75.7% | 73.5% | 85.1% | 79.6% | 68.3% | 65.5% | 93.9% | 71.8% | 81.2% |
| 1 - Number of short-haul flights taken in last 12 months (all respondents) | 13.1% | 14.7% | 14.4% | 7.9% | 10.1% | 16.6% | 14.7% | 3.7% | 15.8% | 10.6% |
| 2 - Number of short-haul flights taken in last 12 months (all respondents) | 7.9% | 7.8% | 8.7% | 3.9% | 6.2% | 10.3% | 12.5% | 2.5% | 7.3% | 6.1% |
| 3 - Number of short-haul flights taken in last 12 months (all respondents) | 3.8% | 1.7% | 3.4% | 3.1% | 4.1% | 4.8% | 7.2% | 0.0% | 5.1% | 2.1% |
| A - Upper middle class - Social class | 3.3% | 3.1% | 1.2% | 0.8% | 2.9% | 8.3% | 7.2% | 0.0% | 1.8% | 1.2% |
| B - Middle class - Social class | 23.4% | 18.9% | 9.4% | 4.3% | 29.9% | 50.9% | 35.9% | 7.8% | 20.3% | 9.8% |
| C1 - Lower middle class - Social class | 29.4% | 28.1% | 24.4% | 14.8% | 39.2% | 30.7% | 28.8% | 31.8% | 37.4% | 13.0% |
| C2 - Skilled working class - Social class | 20.5% | 24.0% | 31.0% | 37.6% | 16.0% | 6.6% | 19.1% | 15.4% | 19.6% | 16.2% |
| D - Working class - Social class | 13.5% | 12.6% | 23.3% | 33.9% | 9.4% | 3.1% | 7.1% | 15.9% | 13.9% | 13.0% |
| E - Lower level of subsistence - Social class | 9.9% | 13.3% | 10.8% | 8.6% | 2.5% | 0.4% | 1.9% | 29.1% | 7.0% | 46.9% |
| Regularly - Frequency of use of home delivery for non-food shopping | 37.2% | 38.7% | 34.6% | 24.7% | 30.6% | 49.4% | 53.2% | 30.7% | 32.2% | 27.6% |
| Sometimes - Frequency of use of home delivery for non-food shopping | 43.7% | 42.1% | 47.6% | 48.9% | 47.4% | 41.8% | 38.9% | 39.8% | 45.5% | 36.4% |
| Have only done this once or twice - Frequency of use of home delivery for non-food shopping | 10.3% | 11.9% | 11.4% | 11.5% | 11.4% | 4.9% | 3.5% | 13.4% | 12.7% | 16.5% |
| Never - Frequency of use of home delivery for non-food shopping | 7.7% | 6.9% | 4.8% | 13.6% | 10.2% | 3.9% | 4.1% | 14.6% | 6.9% | 15.9% |
| Don't know - Frequency of use of home delivery for non-food shopping | 1.1% | 0.5% | 1.5% | 1.3% | 0.5% | 0.0% | 0.3% | 1.5% | 2.7% | 3.6% |
| 16-20 - Age | 5.2% | 3.9% | 14.0% | 0.3% | 0.0% | 1.7% | 5.7% | 0.0% | 6.0% | 16.0% |
| 21-29 - Age | 14.2% | 11.4% | 34.3% | 0.7% | 0.1% | 10.4% | 18.8% | 0.0% | 18.3% | 25.9% |
| 30-39 - Age | 18.4% | 14.8% | 29.6% | 1.6% | 0.1% | 29.9% | 28.6% | 0.0% | 24.2% | 29.1% |
| 40-49 - Age | 15.2% | 13.3% | 14.4% | 3.5% | 1.1% | 37.2% | 21.9% | 0.0% | 19.4% | 21.9% |
| 50-59 - Age | 16.3% | 13.7% | 7.2% | 30.2% | 20.8% | 18.9% | 17.5% | 22.1% | 17.2% | 5.4% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 60-69 - Age | 15.1% | 17.4% | 0.2% | 32.3% | 39.7% | 1.7% | 6.1% | 29.7% | 10.8% | 1.7% |
| 70+ - Age | 15.6% | 25.6% | 0.3% | 31.4% | 38.2% | 0.2% | 1.4% | 48.2% | 4.1% | 0.0% |
| University Higher Degree (e.g. MSc; PhD) - Education | 13.3% | 13.2% | 8.2% | 1.6% | 8.0% | 33.6% | 18.5% | 1.1% | 18.9% | 1.1% |
| First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE - Education | 21.9% | 18.5% | 18.9% | 3.7% | 24.4% | 38.5% | 27.4% | 8.7% | 27.4% | 5.3% |
| Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) - Education | 8.2% | 9.0% | 6.7% | 1.9% | 11.8% | 5.6% | 10.5% | 5.1% | 7.5% | 10.6% |
| A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent - Education | 21.4% | 17.8% | 34.1% | 5.1% | 23.1% | 15.9% | 23.9% | 17.3% | 19.1% | 23.9% |
| GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent - Education | 20.3% | 24.0% | 21.7% | 21.5% | 26.2% | 4.0% | 13.9% | 31.0% | 19.1% | 28.5% |
| GCSE grade D - G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent - Education | 7.1% | 9.5% | 7.2% | 17.9% | 5.5% | 2.1% | 4.5% | 12.3% | 3.9% | 12.0% |
| None of the above - Education | 6.6% | 7.1% | 2.1% | 47.9% | 0.7% | 0.0% | 0.7% | 22.2% | 2.2% | 14.4% |
| Refused - Education | 1.0% | 0.9% | 1.1% | 0.3% | 0.3% | 0.3% | 0.5% | 2.3% | 1.9% | 4.3% |
| Living comfortably on present income - Household income | 25.1% | 26.5% | 17.9% | 23.9% | 30.1% | 31.0% | 35.2% | 19.3% | 18.2% | 11.0% |
| Coping on present income - Household income | 45.1% | 41.2% | 47.0% | 46.5% | 53.9% | 46.8% | 43.5% | 47.5% | 45.6% | 19.4% |
| Finding it difficult on present income - Household income | 19.7% | 21.6% | 23.0% | 22.3% | 12.1% | 17.1% | 16.8% | 18.0% | 22.0% | 33.6% |
| Finding it very difficult on present income - Household income | 7.9% | 9.4% | 8.9% | 7.0% | 4.0% | 4.0% | 3.6% | 14.5% | 9.0% | 23.0% |
| Don't know - Household income | 2.2% | 1.3% | 3.1% | 0.3% | 0.0% | 1.1% | 0.9% | 0.7% | 5.2% | 13.0% |
| Male - Gender | 49.0% | 52.2% | 45.7% | 52.9% | 46.9% | 47.5% | 52.4% | 42.2% | 47.9% | 56.5% |
| Female - Gender | 51.0% | 47.8% | 54.3% | 47.1% | 53.1% | 52.5% | 47.6% | 57.8% | 52.1% | 43.5% |
| White English/Welsh/Scottish/Northern Irish/British - What is your ethnic group? | 82.4% | 85.7% | 75.6% | 93.9% | 92.6% | 80.1% | 84.7% | 92.5% | 66.7% | 69.8% |
| Irish - What is your ethnic group? | 1.1% | 2.2% | 0.3% | 0.7% | 1.3% | 1.5% | 0.3% | 1.1% | 0.9% | 0.7% |
| Gypsy/Irish Traveller - What is your ethnic group? | 0.2% | 0.1% | 0.1% | 0.0% | 0.0% | 0.2% | 0.3% | 0.0% | 0.2% | 1.8% |
| Any other White background - What is your ethnic group? | 3.9% | 2.5% | 5.0% | 2.3% | 2.2% | 5.4% | 2.3% | 1.9% | 9.2% | 3.4% |
| White and Black Caribbean - What is your ethnic group? | 0.8% | 1.0% | 1.1% | 0.0% | 0.1% | 0.5% | 1.0% | 0.7% | 0.8% | 2.5% |

| WEIGHTED | Total | Segment 1 | Segment 2 | Segment 3 | Segment 4 | Segment 5 | Segment 6 | Segment 7 | Segment 8 | Segment 9 |
|---|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| White and Black African - What is your ethnic group? | 0.6% | 0.7% | 0.8% | 0.9% | 0.3% | 0.3% | 0.8% | 0.0% | 0.5% | 2.0% |
| White and Asian - What is your ethnic group? | 1.0% | 0.5% | 1.6% | 0.0% | 0.2% | 1.8% | 1.3% | 1.5% | 1.5% | 1.0% |
| Any other mixed/multiple ethnic group - What is your ethnic group? | 0.7% | 0.6% | 0.6% | 0.7% | 0.2% | 1.0% | 0.3% | 0.8% | 1.6% | 0.3% |
| Indian - What is your ethnic group? | 1.9% | 1.9% | 2.5% | 0.6% | 0.9% | 2.3% | 2.4% | 0.0% | 3.5% | 2.1% |
| Pakistani - What is your ethnic group? | 1.4% | 0.9% | 3.6% | 0.3% | 0.2% | 1.0% | 1.8% | 0.0% | 1.8% | 2.2% |
| Bangladeshi - What is your ethnic group? | 0.8% | 0.5% | 2.3% | 0.3% | 0.0% | 0.6% | 1.0% | 0.0% | 0.7% | 2.1% |
| Chinese - What is your ethnic group? | 0.6% | 0.3% | 0.7% | 0.0% | 0.1% | 1.0% | 0.5% | 0.4% | 1.8% | 0.6% |
| Any other Asian background - What is your ethnic group? | 0.6% | 0.3% | 1.3% | 0.0% | 0.5% | 0.3% | 0.2% | 0.0% | 2.1% | 0.3% |
| African - What is your ethnic group? | 1.2% | 0.8% | 2.1% | 0.0% | 0.1% | 1.5% | 1.3% | 0.3% | 2.2% | 2.7% |
| Caribbean - What is your ethnic group? | 0.8% | 0.7% | 0.5% | 0.0% | 0.8% | 0.3% | 0.5% | 0.4% | 2.3% | 1.4% |
| Any other Black/ African/ Caribbean background - What is your ethnic group? | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% | 0.3% |
| Arab - What is your ethnic group? | 0.2% | 0.0% | 0.6% | 0.3% | 0.0% | 0.2% | 0.0% | 0.0% | 0.5% | 0.3% |
| Any other ethnic group - What is your ethnic group? | 0.4% | 0.8% | 0.4% | 0.0% | 0.1% | 0.3% | 0.4% | 0.3% | 0.3% | 0.7% |
| Prefer not to say - What is your ethnic group? | 1.2% | 0.6% | 0.9% | 0.0% | 0.2% | 1.6% | 0.9% | 0.0% | 3.0% | 5.6% |

Table 9 Summary of coefficients for car owners reduced algorithm.

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|-----------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| f12_2_CN76rec_1 | Answer 2 from question F12 multiplied by answer 1 from question CN76rec | 1.499 | 2.077 | 2.539 | 1.889 | 3.678 | 1.681 |
| f5_b_4_cn76_4 | Answer 4 from question f5_b multiplied by answer 4 from question cn76 | 4.255 | 2.106 | 5.803 | 3.773 | 1.963 | 2.391 |
| f5_b_3_b39b_3 | Answer 3 from question f5_b multiplied by answer 3 from question b39b | -10.438 | 22.540 | 25.468 | 27.777 | 30.836 | 27.865 |
| f12_7_b39b_3 | Answer 7 from question f12 multiplied by answer 3 from question b39b | -1.248 | -0.377 | 0.011 | 1.773 | 0.469 | 0.001 |
| f12_3_cn76_4 | Answer 3 from question f12 multiplied by answer 4 from question cn76 | 2.721 | 3.250 | 2.921 | 4.862 | 3.250 | 3.336 |
| f5_b_6_CN76rec_4 | Answer 6 from question f5_b multiplied by answer 4 from question CN76rec | -1.913 | -0.586 | 0.302 | -2.509 | -0.325 | -1.069 |
| brk_soc_4_cn76_4 | Answer 4 from question brk_soc multiplied by answer 4 from question cn76 | 5.556 | 3.672 | 4.221 | 3.371 | 4.230 | 3.950 |
| b39b_3_CN76rec_2 | Answer 3 from question b39b multiplied by answer 2 from question CN76rec | -0.437 | 0.001 | -0.245 | -0.533 | -0.702 | -0.944 |
| brk_soc_2_CN76rec_4 | Answer 2 from question brk_soc multiplied by answer 4 from question CN76rec | 3.692 | 2.359 | 2.095 | 2.254 | 1.560 | 1.917 |
| f5_b_7_CN76rec_4 | Answer 7 from question f5_b multiplied by answer 4 from question CN76rec | -1.017 | 1.421 | 3.621 | 0.887 | 2.676 | 1.777 |
| brk_soc_3_CN76rec_4 | Answer 3 from question brk_soc multiplied by answer 4 from question CN76rec | 0.873 | 0.153 | 0.010 | -0.597 | -1.339 | 0.027 |
| B2_B39_3_CN76rec_4 | Answer 3 from question B2_B39 multiplied by answer 4 from question CN76rec | -2.917 | -2.307 | -5.509 | -2.552 | -2.241 | -2.737 |
| f5_b_5_B2_B39_1 | Answer 5 from question f5_b multiplied by answer 1 from question B2_B39 | -11.654 | -8.337 | -11.157 | -11.777 | -8.268 | -7.819 |
| brk_soc_4_children_16 | Answer 4 from question brk_soc multiplied by value of variable children_16 | -0.622 | 2.028 | 1.378 | 3.119 | 2.401 | 3.424 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|-----------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| f5_b_2_B2_B39_1 | Answer 2 from question f5_b multiplied by answer 1 from question B2_B39 | 20.805 | 15.233 | 15.512 | 15.287 | 15.567 | 15.794 |
| f12_7_B2_B39_1 | Answer 7 from question f12 multiplied by answer 1 from question B2_B39 | -18.385 | -10.884 | -4.124 | -11.894 | -12.209 | -11.157 |
| b5_3_B2_B39_1 | Answer 3 from question b5 multiplied by answer 1 from question B2_B39 | -1.381 | -0.718 | -0.376 | -0.733 | -1.166 | -7.222 |
| b5_2to11_B2_B39_1 | Answer from question b5_2to11 multiplied by answer 1 from question B2_B39 | 2.536 | -0.105 | 0.264 | 0.655 | 1.606 | 8.493 |
| brk_soc_2_B2_B39_1 | Answer 2 from question brk_soc multiplied by answer 1 from question B2_B39 | -13.004 | -14.838 | -14.275 | -12.533 | -11.867 | -12.936 |
| b5_2_f5_b_7 | Answer 2 from question b5 multiplied by answer 7 from question f5_b | 1.859 | 0.153 | 1.520 | 0.836 | 1.356 | 3.223 |
| f5_b_5_cn7_6_4 | Answer 5 from question f5_b multiplied by answer 4 from question cn76 | 3.041 | 1.022 | 5.646 | 3.944 | 2.147 | 3.041 |
| B2_B39_1 | Answer 1 from question B2_B39 | 23.589 | 34.100 | 32.375 | 31.816 | 33.445 | 32.447 |
| B2_B39_3 | Answer 3 from question B2_B39 | 62.905 | 17.497 | 19.332 | 17.316 | 17.653 | 18.551 |
| brk_soc_3_b39b_3 | Answer 3 from question brk_soc multiplied by answer 3 from question b39b | -18.022 | -11.685 | -11.721 | -10.325 | -10.410 | -10.563 |
| B17_12rec_b39b_3 | value of variable B17_12rec multiplied by answer 3 from question B39b | -1.454 | -1.347 | -1.559 | -1.548 | -1.834 | -0.703 |
| f5_b_3_B2_B39_1 | Answer 3 from question f5_b multiplied by answer 1 from question B2_B39 | 32.005 | -8.790 | -9.444 | -11.600 | -14.136 | -11.159 |
| b39b_3_cn76_4 | Answer 3 from question b39b multiplied by answer 4 from question cn76 | -4.958 | -3.121 | -4.215 | -3.821 | -4.421 | -4.455 |
| brk_soc_2_children_16 | Answer 2 from question brk_soc multiplied by value of variable children_16 | -0.106 | 0.343 | 1.923 | 0.490 | 1.013 | 1.848 |
| f5_b_5_children_16 | Answer 5 from question F5_b multiplied by value of variable children_16 | -3.061 | -1.108 | -1.087 | -2.905 | -0.649 | -0.166 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|----------------------|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| f12_2_child ren_16 | Answer 2 from question F12 multiplied by value of variable children_16 | 2.297 | 3.034 | 4.297 | 2.808 | 4.409 | 3.317 |
| f12_4_child ren_16 | Answer 4 from question F12 multiplied by value of variable children_16 | 3.176 | 5.401 | 6.704 | 4.586 | 5.320 | 4.692 |
| f12_3_child ren_16 | Answer 3 from question F12 multiplied by value of variable children_16 | 1.968 | 4.806 | 5.612 | 3.482 | 5.158 | 5.971 |
| f5_b_6_cn7 6_4 | Answer 6 from question f5_b multiplied by answer 4 from question cn76 | 4.459 | 2.295 | 4.793 | 4.393 | 3.320 | 3.498 |
| brk_soc_3_b5_2 | Answer 3 from question brk_soc multiplied by answer 2 from question b5 | 0.570 | -0.886 | -0.775 | -1.791 | -2.306 | -2.270 |
| B17_12rec_b5_2to11 | value of variable B17_12rec multiplied by 1 if answers 2 to 11 in B5 were given, otherwise by 0 | 1.390 | 1.563 | 1.731 | 1.662 | 1.483 | 7.375 |
| B2_B39_1_children_16 | Answer 1 from question B2_B39 multiplied by value of variable children_16 | 0.315 | -0.992 | -2.926 | -1.987 | -1.771 | -2.499 |
| f5_b_4 | Answer 4 from question f5_b | 23.106 | 12.967 | 17.678 | 18.252 | 18.198 | 17.483 |
| f5_b_5 | Answer 5 from question f5_b | 37.654 | 20.945 | 31.284 | 32.893 | 25.836 | 24.474 |
| B17_11rec | value of variable B17_12rec | 0.309 | 0.182 | 0.593 | 1.011 | -0.050 | 5.043 |
| f5_b_6 | Answer 6 from question f5_b | 32.163 | 13.902 | 25.175 | 28.446 | 18.328 | 18.865 |
| f5_b_7 | Answer 7 from question f5_b | 34.464 | 14.098 | 24.448 | 29.266 | 17.489 | 16.810 |
| f12_1 | Answer 1 from question f12 | 2.878 | 2.741 | 3.601 | 2.755 | 4.993 | 3.220 |
| f12_5 | Answer 5 from question f12 | 4.982 | 5.522 | 6.578 | 4.725 | 4.245 | 5.247 |
| f12_6 | Answer 6 from question f12 | 7.056 | 6.572 | 9.416 | 5.810 | 4.958 | 6.440 |
| f12_7 | Answer 7 from question f12 | 23.719 | 14.102 | 15.006 | 12.160 | 13.229 | 13.906 |
| brk_soc_2 | Answer 2 from question brk_soc | 14.649 | 15.922 | 14.471 | 17.193 | 17.217 | 17.093 |
| brk_soc_3 | Answer 3 from question brk_soc | 19.769 | 14.518 | 13.975 | 15.946 | 17.314 | 16.045 |

| Variable name | Variable description | Model Coefficients Segment 1 | Model Coefficients Segment 2 | Model Coefficients Segment 3 | Model Coefficients Segment 4 | Model Coefficients Segment 5 | Model Coefficients Segment 6 |
|---------------|--------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| brk_soc_1 | Answer 1 from question brk_soc | 4.409 | 4.699 | 3.559 | 8.422 | 8.764 | 7.295 |
| (Constant) | | -57.434 | -26.198 | -33.891 | -33.152 | -30.917 | -33.519 |

Table 10 Summary of coefficients for non-car owners reduced algorithm.

| Variable name | Variable description | Model Coefficients Segment 7 | Model Coefficients Segment 8 | Model Coefficients Segment 9 |
|--------------------|--|------------------------------|------------------------------|------------------------------|
| B2_B39_1 | Answer 1 from question B2_B39 | 8.360008743 | 13.86508875 | 11.22056431 |
| brk_soc_3_B2_B39_1 | Answer 3 from question Brk_soc multiplied by answer 1 from question B2_B39 | 0.985798895 | 4.00218623 | -0.132055373 |
| brk_soc_4_B2_B39_1 | Answer 4 from question Brk_soc multiplied by answer 1 from question B2_B39 | 1.717010933 | 4.081034842 | -0.01377903 |
| brk_soc_6 | Answer 6 from question Brk_soc | 2.661336796 | 2.04971758 | 4.780692974 |
| cn76_4_B2_B39_1 | Answer 4 from question CN76 multiplied by answer 1 from question B2_B39 | -0.927853644 | -3.622543504 | 0.425695679 |
| CN76rec_4_b39b_1 | Answer 4 from question CN76rec multiplied by answer 1 from question B39b | 4.34479051 | 4.141147544 | 4.033751023 |
| f12_1 | Answer 1 from question F12 | 1.773902939 | 5.298415488 | 0.861068246 |
| f12_2 | Answer 2 from question F12 | 2.48126008 | 4.898384681 | 1.445900564 |
| f12_6 | Answer 6 from question F12 | 3.600235792 | 0.560661742 | 4.436276394 |
| f12_7 | Answer 7 from question F12 | 4.688255842 | 0.447039754 | 3.596472206 |
| f5_b_2 | Answer 2 from question F5_b | 1.956319453 | 2.091673628 | 2.435793022 |
| f5_b_5 | Answer 5 from question F5_b | 19.15609661 | 9.71609654 | 7.199421236 |

| Variable name | Variable description | Model Coefficients Segment 7 | Model Coefficients Segment 8 | Model Coefficients Segment 9 |
|-----------------|---|------------------------------|------------------------------|------------------------------|
| f5_b_5_b2_4 | Answer 5 from question F5_b multiplied by answer 4 from question B2 | -6.618318373 | -2.716571493 | -1.758077473 |
| f5_b_5_b39b_3 | Answer 5 from question F5_b multiplied by answer 3 from question B39b | -7.961647885 | -3.441657814 | -4.041519602 |
| f5_b_6 | Answer 6 from question F5_b | 21.43584552 | 9.140772833 | 6.708319524 |
| f5_b_6_B2_B39_1 | Answer 6 from question F5_b multiplied by answer 1 from question B2_B39 | -10.9841477 | -7.155291191 | -7.543521981 |
| f5_b_7 | Answer 7 from question F5_b | 19.96213529 | 6.911190937 | 5.390031911 |
| Constant | | -14.26164419 | -9.983926628 | -9.527239978 |

Table 11 Summary of 2022 golden questions and reduced variants

| Var name | Question text & original var name | Algorithm in which question is included | Reduced variant changes |
|-------------|---|---|-------------------------|
| A1 | A1. How long have you lived in your current home? | car owner | removed |
| B17_11 | B17_11. Speed/performance is important when buying a car or van | car owner | |
| B17_12 | B17_12. Style/design is important when buying a car or van | car owner | |
| B19 | B19. Approximately how many miles a year do you personally drive in TOTAL in all of the cars/vans owned/used by your household? | car owner | removed |
| B42_04 | B31_3. Agreement with: I would cycle (more) if there were more dedicated cycle paths | car owner | removed |
| B5 | B5. How many cars/vans does your household own or have continuous use of at present? Please include company cars/vans (if available for private use) | car owner | |
| B2 | B2. Do you have any disability or other long standing health problem that makes it difficult for you to do any of the following? | both | |
| B39b | B39b. Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? Please include difficulty due to old age. | both | |
| Brk_soc | UK01SG. The social grade | both | |
| F12 | F12. Highest level of education from pre-coded list | both | |
| Resp_age | Age of respondent | both | |
| B2, B39b | Mobility / disability issues (combined from 2 questions) | car owner | |
| B31_a | B31_1. Agreement with: In general, I think that successful people tend to travel by car rather than by bus | non-car owner | removed |
| B42_08 | B31_2. Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops) | non-car owner | removed |
| B46a, B46b, | B46. How safe are trains relative to other modes (in terms of risk of being a victim of crime)? | non-car owner | removed |

| Var name | Question text & original var name | Algorithm in which question is included | Reduced variant changes |
|---------------|---|---|------------------------------|
| B46c, B46d | | | |
| B47_2 | B47_2. Short-haul international - to somewhere in Europe including the Republic of Ireland | non-car owner | removed |
| B47_2, B50 | B50. How many short-haul flights starting from the UK did you make to Europe during the last 12 months? | non-car owner | removed |
| Cn76 | CN76. And how often nowadays , if at all, do you use home delivery (e.g. internet shopping / telephone ordering) for any non-food shopping, such as for buying books, music, clothes, holidays, or insurance? | non-car owner | added in car owner algorithm |
| F15 | F15. From this list, which of these phrases comes closest to describing your feeling about your household income these days? | non-car owner | removed |
| F5 | Children in age <=16 in household | | added in car owner algorithm |

Table 12 Qualitative phase – sample structure

| Segment | Age | Gender | Ethnicity | SEG | Region | Urban/ Rural | Education | Mobility impairment/ disability | Use online delivery for non-food shopping | Other | Number of interviews completed |
|---------|------------------------|----------------|--|------------------------------------|--------|-------------------------------|-----------|---------------------------------------|--|---|--------------------------------------|
| 1 | 2 x 45-59 2 x 60+ | 2 x F 2 x M | 4 x White British | 2 x B 1 x C1 1 x C2 | Mix | 2 x urban; min 1x rural | Mix | N/A | 2 x Regularly 2 x Sometimes | | 4 |
| 2 | 1 x 20-29 1 x 30-39 | 1 x F 1 x M | 1 x Ethnic minority 1 x White British | 1 x C 1 x D | N/A | N/A | N/A | N/A | N/A | 2 x with children in the household | 2 |
| 3 | 2 x 60-69 | 1 x M 1 x F | 2 X White British | 1 x C 1 x D | N/A | Minimum 1 x rural | N/A | N/A | N/A | 2 x 2 person household (couples with no children living in household) | 2 |
| 4 | 1 x 50-59 1 x 60-69 | 1 x F 1 x M | 2 X White British | 1 x B 1 x C1 | N/A | Minimum 1 x rural | N/A | N/A | N/A | employmen t status: 1 x retired; 1 x employed | 2 |
| 5 | 2 x 30-39 2 x 40-49 | 2 x F 2 x M | 2 x Ethnic minority 2 x White British | 4 x AB (min 1 A, min 1 B) | N/A | 2 x urban 2 x rural | N/A | N/A | N/A | 4 x with children in HH (min 1 with a secondary school child; min 1m with a primary school child; nice to have | 4 |

| Segment | Age | Gender | Ethnicity | SEG | Region | Urban/ Rural | Education | Mobility impairment/ disability | Use online delivery for non-food shopping | Other | Number of interviews completed |
|---------|--------------------------|------------------------|---|-----------------|--------|--------------------------------------|--|--|--|---|--------------------------------------|
| | | | | | | | | | | min 1 with both primary and secondary school child) | |
| 6 | 1 x 30-39 1 x 40-49 | 1 x M 1 x F | 1 x Ethnic minority 1 x White British | 1 x A 1 x B | N/A | Minimum 1 x rural | N/A | N/A | | 2 x with children in the household | 2 |
| 7 | min 2 x 70+ 1 x 60-69 | min 2 x F min 1 x M | 4 x White British | 2 x D 2 x E | N/A | Minimum 2 x urban city & town | N/A | 2 x with mobility issues 2 x no mobility issues | N/A | min 3 x single person household min 3 x retired | 4 |
| 8 | 4 x 25-45 | 2 x F 2 x M | 2 x White British/Any other white background 2 x Ethnic minority | 2 x B 2 x C1 | Mix | 2x Living in London; 2 x other Urban | 2 x First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 2 x University Higher Degree (e.g. MSc; PhD) | N/A | N/A | | 4 |

| Segment | Age | Gender | Ethnicity | SEG | Region | Urban/ Rural | Education | Mobility impairment/ disability | Use online delivery for non-food shopping | Other | Number of interviews completed |
|---------|------------------------|----------------|--|----------------|--------|-----------------|-----------|---|--|--------------------------------------|--------------------------------------|
| 9 | 2 x 16-20 2 x 20-29 | 2 x M 2 x F | 2 X Ethnic minority 2 x White British | 2 x E 2 x D | N/A | N/A | N/A | 2 x mobility issues 2 x mental health condition | N/A | 2 x unemploye d 2 x student | 4 |

Table 13 Questions used from quantitative survey for Persona development.

| Question number | Question text |
|-------------------|---|
| GENDER_NONBINARY. | N/A - Acquired through existing data held on Ipsos Online Access Panel |
| RESP_AGE. | N/A - Acquired through existing data held on Ipsos Online Access Panel |
| B2 | Do you have any disability or other long-standing health problem that makes it difficult for you to do any of the following? |
| B39b. | Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? |
| ETHNICITY. | What is your ethnic group? |
| HHOLDINCOME. | Into which of the following bands does your annual household income fall, before tax and other deductions? |
| MENTALHEALTH. | Do you consider yourself as having a long-standing mental health condition or illness? |
| PHYSICAL. | Do you consider yourself as having any long-standing physical health conditions or illnesses? |
| QURBAN. | N/A - Acquired through postcode |
| UKREGION1. | Where do you live? |
| EMP01. | What is your current employment status? |
| WFHCOMMUTE. | How often, if at all, do you do each of the following in a typical week? |

| Question number | Question text |
|-----------------|---|
| CN75. | How often, if at all, do you use home delivery (e.g., internet shopping / telephone ordering) for your food shopping nowadays? |
| CN76. | And how often nowadays, if at all, do you use home delivery (e.g., internet shopping / telephone ordering) for any non-food shopping, such as for buying books, music, clothes, holidays, or insurance? |
| TENURE. | Which of these applies to your home? |
| PRE-PRIMARY. | How many children of pre-primary school age, if any, live with you either all or some of the time? |
| SECONDARY. | How many children of pre-SECONDARY school age, if any, live with you either all or some of the time? |
| SMART. | Do you personally use a smartphone? |
| NEWS. | Which of the following sources, if any, do you regularly use for news? |
| SOCIALMEDIA. | Which, if any, of these social media apps or sites do you use regularly whether to access news, connect with people or some other reason? |
| B28. | About how long would it take to walk from here your home to each of the following? 'The nearest permanent bus stop or place where you could get on a bus?' / 'to the nearest railway station?' |
| PARKING. | Which ONE of the following best describes where you/your household typically parks your vehicle? |
| CYCLE. | Do you have regular use of the following? - Bicycle / electric powered bicycle (e-bike) - an electric bicycle is one that is assisted by an electric motor when you pedal |
| B5. | How many cars/vans does your household own or have continuous use of at present? |
| B9. | What fuel does the engine use? |
| B19. | Looking at the following list, approximately how many miles a year do you personally drive in TOTAL in all of the cars/vans owned/used by your household? |
| SRN. | Thinking again about the last 6 months, how often, if at all, would you say you have personally travelled on motorways or major 'A' roads – either as a driver or passenger. |
| SMARTTRANS. | Do you typically use your smartphone to go online for any of these purposes? |
| MODE1. / 1a. | Thinking about the last 6 months, how frequently have you personally travelled by the following modes of transport in the UK? |

| Question number | Question text |
|-----------------|---|
| PURPOSE. | For which of these reasons, if any, have you made a journey of any kind in the last 6 months. It does not matter which mode(s) of transport you used. |
| B47. | What types of flights, if any, starting from the UK have you taken in the last 12 months? |
| D5. | Which of these best describes how you feel about your current lifestyle and your contribution to climate change? |

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