Exploring food attitudes and behaviours in the UK: Findings from the Food and You Survey 2010

Annex B: Methodology

TNS-BMRB, Policy Studies Institute and University of Westminster

Social Science Research Unit

Food Standards Agency

March 2011

Annex B – Methodology

Introduction

The Food and You survey comprised a total of 3,163 interviews with adults (aged 16+, with no upper age limit) across the UK. The samples were boosted in Scotland and Northern Ireland, to enable more detailed in-house analysis at a country level.

The total number of interviews achieved was:
- 2,025 in England,
- 121 in Wales,
- 511 in Scotland and
- 506 in Northern Ireland.

At the analysis stage, corrective weighting was applied so that the weighted sample was representative of the UK as a whole.

The sample

The survey sample was a stratified random probability sample of private households in the UK. The sample was stratified by Government Office Region (GOR), the percentage of heads of households in a non-manual occupation (NS-SEC groups 1-3), the percentage of households with no car and population density (persons per hectare). The Postcode Address File (PAF) was used as a sampling frame. The PAF lists all known UK postcodes and addresses and is the sampling frame commonly used in general population surveys. In each eligible household, one adult aged 16+ (with no upper age limit) was selected for interview, using a random selection procedure in households where there was more than one eligible adult.

The Primary Sample Units (PSUs) were postcode sectors. Sectors with fewer than 500 addresses were grouped with neighbouring sectors prior to stratification.

An initial sample was drawn of 170 PSUs in England and Wales, 39 in Scotland and 39 in Northern Ireland. 25 addresses were sampled per PSU. As survey response rates were lower than anticipated, an additional 16 PSUs in England and Wales, and 7 in Scotland, was subsequently selected. The final number of PSUs was therefore 186 in England and Wales, 46 in Scotland and 39 in Northern Ireland.

A total of 6,775 addresses was issued to interviewers (4,650 in England and Wales, 1,150 in Scotland and 975 in Northern Ireland).

Questionnaire development

Extensive development work was carried out to develop the questionnaire and survey procedures.

Prior to commissioning the survey, the FSA undertook a scoping study to review existing research (predominately quantitative) covering food issues to assess what could be learnt from the existing research, minimise duplication and help inform question development for Food and You[1].

An Advisory Group was established to help advice the FSA and consortium on key aspects of the survey, including the content and structure of the final questionnaire and the survey outputs. The Advisory Group consisted of experts in the topic area of food and in survey methodology.

Initial qualitative work was conducted by the consortium to fill gaps in existing research around some of the subject areas to be covered in the survey (in particular, the food safety topics) and to ensure that the questionnaire would be drafted at the correct level for respondents in terms of knowledge and language. The qualitative research included eight focus groups and a depth interview and kitchen exploration with one participant from each of the focus groups.

Draft survey questions were cognitively tested to ascertain whether the questions were working as intended, and to ensure respondents were able to answer them accurately. The cognitive testing also highlighted any ambiguous question wording, which was subsequently amended. Cognitive testing was carried out with 60 respondents in two locations.

A sample of draft questions were also included on TNS's Omnibus survey to check whether measures designed to test attitudes were able to discriminate appropriately and that they produce quantitatively credible results. This led to a number of attitudinal statements being removed from the survey.

A dress-rehearsal pilot was conducted among 49 respondents in February 2010 to fully test the questionnaire and survey procedures.

Questionnaire content

In order to cover more topics within the questionnaire, three sections were rotated, that is, each asked of a random third of respondents.

The topics included in the questionnaire were as follows:

- Information about household members
- Healthy eating attitudes and behaviour

---

[1] The scoping study report can be found at:
http://www.food.gov.uk/multimedia/pdfs/foodandyouscoping.pdf

- Knowledge of dietary recommendations
- Eating patterns (asked of random third of respondents)
- Eating out (asked of random third of respondents)
- Shopping expenditure
- Shopping habits (asked of random third of respondents)
- Food safety attitudes and behaviour
- Self-reported health, physical activity, height and weight
- Demographics

Full details of the survey methodology, and a copy of the questionnaire, are included in the Technical Report[2].

Fieldwork

Interviews were carried out face-to-face, using computer-assisted personal interviewing (CAPI). All interviewers were personally briefed by the research team in a half day face to face briefing meeting.

All sampled addresses were sent a letter in advance of the interviewer's visit. The letter gave a brief introduction to the survey and stressed the importance of taking part. The letter also stressed that all information would be kept confidential.

For addresses in Wales, the advance letter was provided in English and Welsh.

Respondents were offered a £10 incentive to encourage participation.

Interviews took, on average, 60 minutes to complete.

Interviews were carried out between March and August 2010.

Survey helpline

A freephone survey helpline was set up at TNS-BMRB; the advance letter included the freephone number, which respondents could ring if they had any queries about the research. The helpline was answered during office hours by a member of the TNS-BMRB research team, with an answer phone operating out of hours.

An email address was also set up, allowing respondents to get in touch with the survey team with any queries.

Response rate

The response rate obtained was 52% of eligible households.

---

[2] Available at: http://www.foodbase.org.uk/results.php?f_category_id=&f_report_id=641

Table B1 shows the full breakdown of responses obtained.

Table B1 Breakdown of survey responses

	UK total	
	n	**% of in scope**
Addresses sampled	**6775**	
Ineligible addresses		
Not yet built/under construction	11	
Derelict/demolished	34	
Vacant/empty housing unit	394	
Non-residential address	90	
Communal establishment/institution	16	
Not main residence	54	
Other ineligible	29	
Nobody aged 16 or above at address	3	
Total ineligible	**631**	
Unknown Eligibility		
Inaccessible/not attempted	19	
Unable to locate address	29	
Total unknown eligibility	**48**	
In scope addresses	**6095**	**100%**
No contact		
No contact with anyone at the address	200	
Contact made but not with responsible adult	3	
No contact with selected respondent	49	
Needed parental permission but no contact with parent	1	
Total no contact	**253**	**4%**
Refusal		
Parental permission refused	2	
Office refusal	152	
Info about dwellings or occupants refused	832	
Refusal before interview	1032	
Proxy refusal	155	
Total refusal	**2173**	**36%**
Other unproductive		
Broken appointment	108	
Person ill at home during survey period	49	
Selected person away or in hospital	102	
Physically or mentally unable	89	
Inadequate English	58	
Other unproductive	93	
Total other unproductive	**483**	**8%**
Interview completed	**3164**	**52%**

Data preparation and outputs

As the main interviews were conducted via computer assisted personal interviewing (CAPI), there was no need for data entry. Routine data editing was also not required, since the electronic script automatically guides the interviewer to the correct questions.

Where questions allowed interviewers to enter an "other" answer, these answers were examined to determine whether they could be back-coded into one of the pre-codes. If these answers did not fit into any of the existing codes and similar themes were coming up, then new codes were raised; otherwise the answers were kept as "others".

Respondents were asked about the industry they worked in and their occupation. For those not currently working this was asked about their most recent job. For those with more than one job, details were collected about their main job. Where the respondent was not the Household Reference Person (HRP), occupation details for the HRP were also collected.

The occupations of respondents and HRPs were coded to sub-major groups using the Standard Occupational Classification (SOC 2000).

Occupation coding was carried out using the automated coding program CASCOT[3], developed by the Institute for Employment Research at the University of Warwick.

The National Statistics Socio-Economic Classification (NS-SEC) was derived and added to the dataset.

Further details of the coding system and codes can be obtained from the Office for National Statistics[4].

An SPSS data file has been provided to the FSA. The dataset is archived at the UK Data Archive[5].

Weighting

Weighting was necessary to correct for unequal probabilities of selection and also to compensate differential non-response across survey sub-groups.

Weights were calculated separately for Scotland, Northern Ireland and England and Wales.

---

[3] For more information on CASCOT see
http://www2.warwick.ac.uk/fac/soc/ier/publications/software/cascot/
[4] http://www.statistics.gov.uk/default.asp
[5] http://www.data-archive.ac.uk/

Design weights were applied to correct for the unequal probabilities of selection introduced by selecting one adult for interview from all adults in the household. For the UK weight, the design weight corrected the over-representation of Scotland and Northern Ireland relative to England and Wales (as boost samples were drawn in those countries).

The achieved sample profile was compared within country with Labour Force Survey (LFS) data for working status by sex, age group and sex. In England and Wales, Government Office Region was also compared.

Rim weighting was applied with targets for working status by sex, age group and sex within Northern Ireland and Scotland; in England and Wales, there was an additional target for Government Office Region.

Finally, the countries were scaled to their due proportion to calculate a combined UK weight.

Tables B2-B5 show the profile of the unweighted and weighted survey samples by country and in total compared with the LFS, for a range of variables.

Table B2 LFS targets, weighted and unweighted samples – England and Wales

	LFS data	Food and You unweighted sample		Food and You sample, weighted by Country weight	
	%	n	%	n	%
England and Wales	100.0	2146	100.0	2146	100.0
Working status by sex					
Men in full time work	22.7	429	20.0	486	22.7
Men not full time in work	26.2	478	22.3	561	26.2
Women in work	24.7	579	27.0	529	24.7
Women not in work	26.5	660	30.8	569	26.5
Age by sex					
Men aged 16-24	7.6	82	3.8	163	7.6
Men aged 25-44	17.1	290	13.5	368	17.1
Men aged 45-59	11.8	203	9.5	252	11.7
Men aged 60+	12.4	332	15.5	265	12.4
Women aged 16-24	7.3	113	5.3	156	7.3
Women aged 25-44	17.3	424	19.8	371	17.3
Women aged 45-59	12.1	272	12.7	259	12.1
Women aged 60+	14.6	430	20.0	313	14.6
GOR					
1.00 North East	4.8	111	5.2	103	4.8
2.00 North West	12.6	264	12.3	271	12.6
3.00 Yorkshire & Humberside	9.6	236	11.0	206	9.6
4.00 East Midlands	8.2	185	8.6	176	8.2
5.00 West Midlands	9.9	230	10.7	212	9.9
6.00 East of England	10.5	204	9.5	224	10.5
7.00 London	14.1	257	12.0	302	14.1
8.00 South East	15.3	321	15.0	328	15.3
9.00 South West	9.7	217	10.1	207	9.7
10.00 Wales	5.5	121	5.6	118	5.5

Table B3 LFS targets, weighted and unweighted samples – Scotland

	LFS data	Food and You unweighted sample		Food and You sample, weighted by Country weight	
	%	n	%	n	%
Scotland	100.0	511	100.0	511	100.0
Working status by sex					
Men in full time work	23.3	100	19.6	119	23.3
Men not full time in work	24.5	106	20.7	125	24.5
Women in work	26.3	141	27.6	134	26.3
Women not in work	25.9	164	32.1	132	25.9
Age					
16 - 24	14.6	46	9.0	74	14.6
25 - 44	32.7	162	31.7	167	32.7
45 - 59	25.5	140	27.4	130	25.5
60+	27.2	163	31.9	139	27.2
Sex					
Male	47.8	206	40.3	244	47.8
Female	52.2	305	59.7	267	52.2

Table B4 LFS targets, weighted and unweighted samples – Northern Ireland

	LFS data	Food and You unweighted sample		Food and You sample, weighted by Country weight	
	%	n	%	n	%
Northern Ireland	100.0	506	100.0	506	100.0
Working status by sex					
Male full time working	19.9	80	15.8	101	19.9
Male not full time	28.6	106	20.9	145	28.6
Female working	23.6	140	27.7	119	23.6
Female not working	27.9	180	35.6	141	27.9
Age					
16 - 24	16.8	43	8.5	85	16.8
25 - 44	35.4	171	33.8	179	35.4
45 - 59	23.8	124	24.5	121	23.8
60+	24.0	168	33.2	121	24.0
Sex					
Male	48.5	186	36.8	245	48.5
Female	51.5	320	63.2	261	51.5

Table B5 LFS targets, weighted and unweighted samples – UK

	LFS data	Food and You unweighted sample		Food and You sample, weighted by UK weight	
	%	n	%	n	%
England and Wales	88.7	2146	67.8	2806	88.7
1.00 North East	*4.2*	*111*	*3.5*	*134*	*4.2*
2.00 North West	*11.2*	*264*	*8.3*	*355*	*11.2*
3.00 Yorkshire and Humberside	*8.5*	*236*	*7.5*	*269*	*8.5*
4.00 East Midlands	*7.3*	*185*	*5.8*	*230*	*7.3*
5.00 West Midlands	*8.8*	*230*	*7.3*	*277*	*8.8*
6.00 East of England	*9.3*	*204*	*6.4*	*293*	*9.3*
7.00 London	*12.5*	*257*	*8.1*	*394*	*12.5*
8.00 South East	*13.6*	*321*	*10.1*	*429*	*13.6*
9.00 South West	*8.6*	*217*	*6.9*	*271*	*8.6*
10.00 Wales	*4.9*	*121*	*3.8*	*154*	*4.9*
Scotland	8.5	511	16.2	269	8.5
Northern Ireland	2.8	506	16.0	89	2.8
Working status by sex					
Male full time working	22.6	609	19.3	716	22.6
Male not full time	26.1	690	21.8	825	26.1
Female working	24.8	860	27.2	784	24.8
Female not working	26.5	1004	31.7	838	26.5
Age					
16 - 24	14.9	284	9.0	470	14.9
25 - 44	34.3	1047	33.1	1085	34.3
45 - 59	24.0	739	23.4	758	24.0
60+	26.9	1093	34.6	850	26.9
Sex					
Male	48.7	1299	41.1	1541	48.7
Female	51.3	1864	58.9	1622	51.3
Total	100.0	3163	100.0	3163	100.0

Regression analysis

In several sections of this report logistic regression models are estimated to provide further descriptive, exploratory analysis. Logistic regression allows statistical associations between a response variable and a range of predictors to be explored. Logistic regression is a type of predictive model that can be used when the response variable is a categorical variable with two categories (for example, whether or not respondents reported eating five or more portions of fruit and/or vegetables a day). The relationship between a particular predictor and the response variable is considered whilst holding the effects of other predictors in the model constant. Variables capturing the following responses are explored using this approach:

- Whether respondents reported eating five or more portions of fruit and/or vegetables in the 24 hours prior to interview
- Whether respondents reported eating out in the seven days prior to interview.

In each case, logistic regression models were estimated using maximum likelihood methods. Results are reported as odds (probabilities) for each predictor in the model. P-values for tests of statistical significance are derived from standard errors that account for the clustered nature of the sample, the use of stratification and sample weights.

Variables included as predictors are drawn from basic socio-demographic data collected during interviews. Predictors for inclusion in the models were chosen in advance of the data set becoming available and were considered a priori potentially important in explaining variation in response variables across the sample. Predictors are reported even where odds are not statistically significant at conventional levels. Only predictors that were highly collinear have been dropped from the models. Measures taken at both the individual and household levels are included as predictors. Predictors for each model are set out in Table B6.

Table B6 Independent variables entered into each logistic regression model

Logistic regression model

Independent variables	**Five portions of fruit/veg**	**Eating out**
Gender	Women*; Men	Women*; Men
Age group	16-24 years*; 25-34; 35-44; 45-54; 55-64; 65-74; 75 plus	16-24 years*; 25-34; 35-44; 45-54; 55-64; 65-74; 75 plus
Ethnic group	Other ethnic group*; White	Other ethnic group*; White
Religious faith of respondent	No religion*; Christian; Other religion	No religion*; Christian; Other religion
Highest educational qualification	No qualifications*; Degree or above; A level - Dip HE; GCSE; Other	No qualifications*; Degree or above; A level - Dip HE; GCSE; Other
Marital status of respondent	Other marital status*; Married	Other marital status*; Married
Economic status of respondent	Unemployed*; In work; Retired; Economically inactive	Unemployed*; In work; Retired; Economically inactive
Number of children in household	At least one child*; No children in the household	At least one child*; No children in the household
Tenure	Social tenant*; Owner occupier; Private tenant	Social tenant*; Owner occupier; Private tenant
NS-SEC of HRP	Routine/manual*; Managerial/professional; Intermediate; Not stated/unclassifiable/never worked	Routine/manual*; Managerial/professional; Intermediate; Not stated/unclassifiable/never worked
Country	England*; Wales; Scotland; Northern Ireland	England*; Wales; Scotland; Northern Ireland

'*' indicates the reference category for each variable

Results can be interpreted as follows. Odds of less than one indicate that, all other things being equal, the event being modelled is less likely to occur for a given category (predictor or factor) of sample members relative to a reference category. Odds of more than one signal the reverse. For example, Table A1 displays an odds of 0.7 for men (the predictor) with women as the reference category. This shows that men were less likely to report having eaten five portions of fruit and vegetables in the past 24 hours than women. The column headed 'p-value' reports p-values from a statistical test of the true value of the predictor being zero. Values lower than 0.05 are statistically significant at the 95 per cent level. In the case of this example, the odds for men reported at Table A1 has a p-value of 0.00. This shows that the estimate is statistically significant at the highest level.