



Taking an existing face-to-face panel survey online: methodological challenges

Peter Lynn, University of Essex

NCRM/RSS Symposium
“Web Surveys of the General Population”
5-6-2014

An initiative by the Economic and Social Research Council, with scientific leadership by the Institute for Social and Economic Research, University of Essex, and survey delivery by NatCen Social Research and TNS BMRB

Important Context



- Longitudinal
 - Extra opportunities: to collect email addresses; to target web based on known characteristics;
 - Extra importance of response rates
- Household
 - Need to interview all household members: major cost saving accrues only when no interviewer visit is needed
- Existing single-mode (CAPI) survey
 - Respondent expectations and precedent;
 - measurement constraints

Acknowledgements



To ISER colleagues involved in the design of experiments that I'll be reporting and/or data analysis that I'll be presenting:

- Annette Jäckle
- Jonathan Burton
- Tarek Al Baghal
- Jorre Vannieuwenhuyze



Understanding Society – The UK Household Longitudinal Study (UKHLS)

- A study of the socio-economic circumstances, attitudes and behaviour of 100,000 individuals in 40,000 households
- Funded by the ESRC
- Run by the Institute for Social and Economic Research (ISER), University of Essex
- Fieldwork currently contracted to NatCen Social Research (waves 1-5) & TNS BMRB (waves 6-8)

UKHLS Study design

- Longitudinal sample of individuals (all ages) representing the UK population, interviewed within a household context
- Individuals followed as they move
- New births to female sample members join the sample at each wave
- Post-wave 1 immigrants will join the sample at wave 6 (2015)
- *Understanding Society* remains representative of the UK population as it changes, nonresponse notwithstanding

UKHLS Design Features

- 12 month intervals between interviews
- All members of the households of sample members are interviewed, whether or not sample members themselves.
- Household interview (CAPI, ave. 12 mins)
- Individual interviews (age 16+; CAPI+CASI, ave. 35 mins)
- Paper Self-completion for 10-15 year-olds
- Core (annual) content + rotating modules
- Innovation Panel: For development and testing



Sampling / Recruitment

Sampling / Recruitment

- Not an issue, as sample already recruited;
 - However, existing sample is a constraint:
Will not all be able & willing to respond online;
Exacerbated by precedent of face-to-face interviewing.
- Mixed mode data collection is implied



Experiments

IP5 (2012) Design I

Two components:

- Original sample, for whom this was the 5th wave (1,400 hhds);
- Refreshment sample, for whom this was the 2nd wave (500 hhds).

Households randomly assigned to one of two treatment groups:

- Face-to-face (one-third of each sample);
- Mixed mode (two-thirds of each sample).

Mixed modes treatment:

- Letter with URL and ID. Sent also by email where available;
- Hhd grid (first respondent only), hhd qre (first householder), individual qre
- 3 email reminders at 3-day intervals; After 14 days, reminder letter + face-to-face visits began

IP5 Design II

Incentive Experiments (all per adult, unconditional):

- Original sample: £5 vs £10
- Refreshment sample: £10 vs £20 vs. £30

Two additional experiments within mixed-mode treatment:

- Additional conditional incentive (versus none): if all hhd members completed web survey, each receive extra £5;
- Day of week of mailing: timed to arrive Friday vs. Monday.

Telephone validation of web household grid data:

- 200 web-respondent households
- Asked independently of web responses, with respect to date at which web grid completed

IP6 Design

Households assigned to same treatment group as IP5. Differences in treatment, compared with IP5:

- An additional, final, field work phase:
 - Face-to-face group: Mail/email invitation to web survey, followed if necessary by phone reminder with CATI option
 - Mixed mode group: Phone reminder to complete by web, with CATI an option
- Incentives (crossed with IP5 incentive treatment):
 - £10 unconditional to each adult;
 - £10 unconditional + £20 conditional on all adults completing
 - £30 unconditional to each adult



Participation

Household Response Rates

	Original sample						Refreshment sample		
	IP4 responding			IP4 non-responding			F2F	MM	<i>P</i>
	F2F	MM	<i>P</i>	F2F	MM	<i>P</i>			
HH response rate at IP5	84.1	81.1	<i>0.29</i>	32.6	40.4	<i>0.38</i>	85.1	82.2	<i>0.49</i>
Complete HHs	63.9	55.7	<i>0.02</i>	14.0	22.2	<i>0.30</i>	60.1	66.2	<i>0.25</i>
Partial HHs	20.3	25.4	<i>0.07</i>	18.6	18.2	<i>0.95</i>	25.0	15.9	<i>0.01</i>
Non-contact	5.6	2.9	<i>0.04</i>	16.3	13.1	<i>0.63</i>	5.4	6.4	<i>0.71</i>
Refusal	8.7	14.1	<i>0.05</i>	46.5	40.4	<i>0.48</i>	8.3	9.6	<i>0.68</i>
<i>N</i>	322	621		43	99		168	315	


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Household Response Rates



	Total sample (IP5 responding)		
	F2F	MM	<i>P</i>
HH response rate at IP6	85.1	75.8	<i>0.001</i>
Complete HHs	65.4	64.2	<i>0.74</i>
Partial HHs	19.8	11.6	<i>0.02</i>
Non-contact	7.2	11.9	<i>0.06</i>
Refusal	7.6	12.3	<i>0.08</i>
<i>N</i>	445	268	

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Effect of Incentives: IP5

Refreshment sample	£10 incentive			£20 incentive			£30 incentive		
	F2F	MM	<i>P</i>	F2F	MM	<i>P</i>	F2F	MM	<i>P</i>
HH response rate	87.5	74.7	0.11	87.0	81.9	0.45	90.3	92.8	0.59
Complete HHs	57.5	52.9	0.66	61.1	68.6	0.40	64.5	78.4	0.08
Partial HHs	30.0	21.8	0.39	25.9	13.3	0.08	25.8	14.4	0.10
Non-contact	0.0	5.7	0.11	3.7	3.8	0.97	3.2	4.5	0.68
Refusal	12.5	18.4	0.38	9.3	12.4	0.59	3.2	0.9	0.27
Other NR	0.0	1.1	0.50	0.0	1.9	0.31	3.2	1.8	0.55
N	40	87		54	105		62	111	

Effect of Incentives: IP6

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	F2F (£10)	MM (£10)	MM (£10+£20)	MM (£30)
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Complete HHs	65.4	64.2	71.1	74.6
Partial HHs	19.8	11.6	13.7	11.6
Non-contact	7.2	11.9	7.6	7.8
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Individual Response Rates

IP5 RR	Original sample						Refreshment sample		
	IP4 responding			IP4 non-responding			F2F	MM	<i>P</i>
	F2F	MM	<i>P</i>	F2F	MM	<i>P</i>			
Full interview	82.8	75.8	0.04	18.5	24.8	0.11	69.8	72.0	0.60
Proxy interview	2.6	2.0	0.50	20.2	9.6	0.00	5.5	1.9	0.00
Partial interview	0.0	1.2	0.01	0.0	0.5	0.34	0.0	1.4	0.03
Non-contact	3.4	2.9	0.65	18.0	10.6	0.05	5.7	6.8	0.68
Refusal	8.5	14.1	0.08	41.0	43.0	0.66	12.9	11.1	0.60
Other NR	2.6	4.0	0.34	2.2	11.4	0.00	6.0	6.9	0.62
<i>N</i>	495	934		178	395		348	592	

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Subgroup Response Rates



Households less likely to be fully-responding with mixed modes (and more likely to be partially responding):

- Households containing children;
- Households in which all adults are regular web users.

Differences in individual response propensities:

- Face-to-face response rates higher in rural areas than urban; mixed mode higher in urban than rural;
- Face-to-face those who said they would not complete a web survey were most likely to respond; mixed mode they were the least likely

We have not been able to identify any subgroup that is more likely to respond with mixed modes than with face-to-face



Costs

Cost Savings

- Marginal unit cost of data collection lower with web than face-to-face
- But extent of the difference depends on the level, viz:
 - Marginal cost saving of an individual web interview, conditional on face-to-face household participation, is small (interviewer visit to the address is shorter);
 - Marginal cost saving of a household participating entirely by web is greater (interviewer does not need to visit the address);
 - Marginal cost of a whole sample point participating entirely by web is greater still (interviewer not needed).

Households Responding Completely by Web at IP5

Proportion of households (<i>n</i>)	Original sample			Refreshment sample
	Total sample	Wave 4 respondent households	Wave 4 non-respondent households	Total sample
Total sample	18.8 (731)	21.0 (621)	5.1 (110)	34.4 (315)

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£5	17.8 (389)	19.5 (330)	7.7 (59)	
£10	21.5 (311)	24.7 (263)	2.3 (48)	23.0 (87)
£20				37.1 (105)
£30				43.2 (111)

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£20				37.1 (105)
£30				43.2 (111)

And the proportions of households responding completely by web at IP6 were even higher (30%+).

Transitions in Mode of Response (Individuals)

	IP6 outcome		
IP5 outcome	Face-to-face	Web	Non-response
Face-to-face	374	168	92
Web	47	509	79
Non-response	81	113	290

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Increasing Take-Up of Web

	Original sample						Refreshment sample		
	IP4 responding			IP4 non-responding					
	%	<i>P</i>	<i>N</i>	%	<i>P</i>	<i>N</i>	%	<i>P</i>	<i>N</i>
No bonus	17.7		295	4.2		55	35.5		152
Bonus	25.8	0.01	298	6.3	0.66	52	35.1	0.93	151
Monday	21.0		292	4.0		56	34.7		150
Friday	22.6	0.61	301	6.5	0.57	51	35.9	0.80	153

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- And there are fixed costs associated with introduction of a second mode
- And larger incentives are likely to be needed
- Bottom line: Only very small cost savings seem possible



Data Quality

Item Nonresponse (IP5)

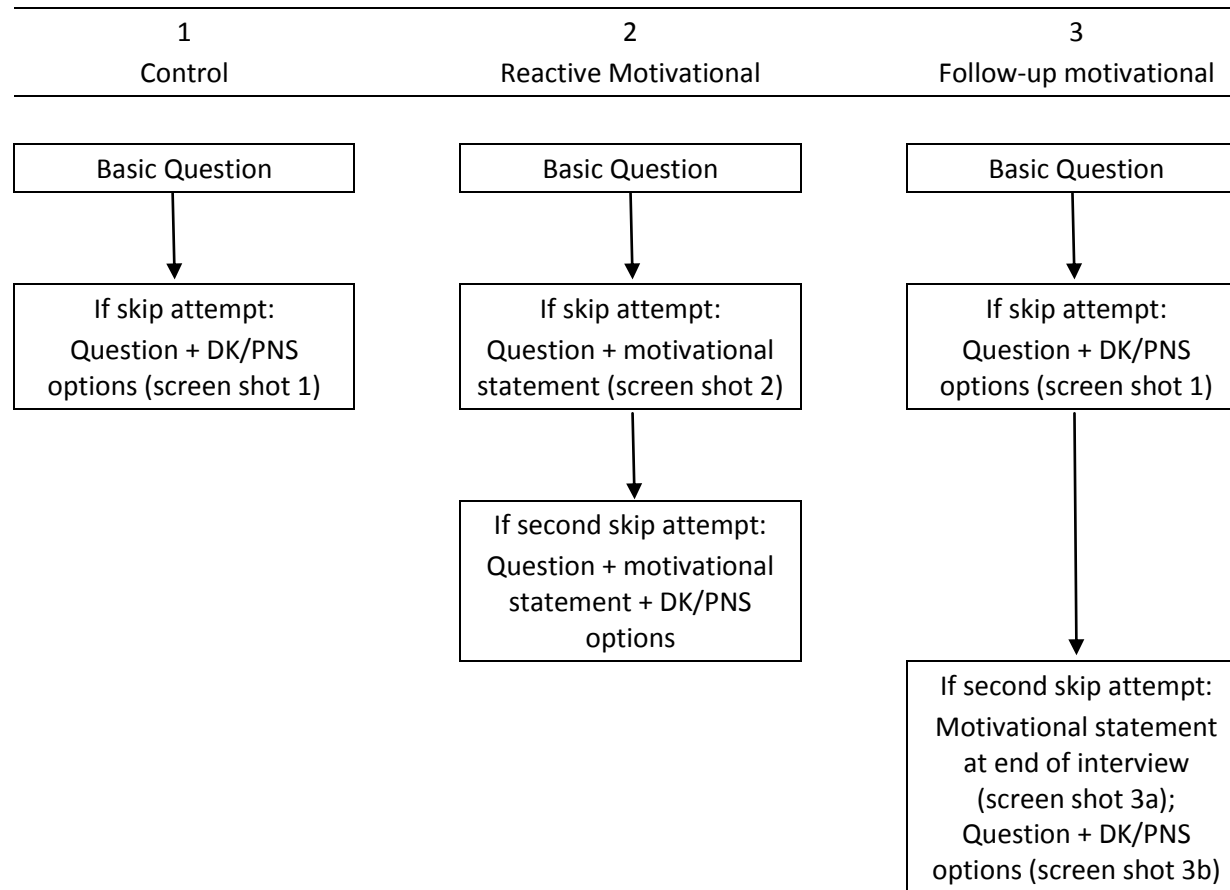
	Original sample			Refreshment sample		
	F2F	MM	<i>P</i>	F2F	MM	<i>P</i>
Mean Item non-response (%)	0.13	0.19	<i>0.014</i>	0.14	0.17	<i>0.137</i>
<i>N</i>	<i>459</i>	<i>856</i>		<i>243</i>	<i>435</i>	
Gross pay Item non-response (%)	10.0	17.5	<i>0.022</i>	8.0	18.0	<i>0.027</i>
<i>N</i>	<i>229</i>	<i>411</i>		<i>112</i>	<i>205</i>	

P: *P*-values from Wald tests of means adjusted for sample design

Experiment with Methods to Reduce Item Nonresponse (IP6)

- Random allocation to 3 treatments (for 6 key items):
 - control (as for IP5 and other items at IP6);
 - reactive motivational (emphasises importance and confidentiality);
 - follow-up motivational (single item at end of questionnaire emphasising importance and confidentiality)

Experiment with Methods to Reduce Item Nonresponse (IP6)



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Item nonresponse rates by treatment; web respondents only

	Control	Reactive	Follow-Up
Gross pay	0.159 ^{a,b} (n=138)	0.127 ^{a,b} (n=166)	0.201 ^a (n=144)
Interest/Dividends	0.250 ^a (n=264)	0.150 ^{b,c} (n=301)	0.205 ^{a,b} (n=254)
Net Profit	0.654 ^a (n=26)	0.556 ^{a,b} (n=18)	0.154 ^c (n=13)
Hourly Pay	0.109 ^{a,b} (n=46)	0.039 ^b (n=51)	0.204 ^a (n=49)
Marital Status Change	0.028 ^a (n=106)	0 ^b (n=107)	0 ^b (n=97)
Total	0.211 ^a (n=264)	0.129 ^b (n=301)	0.181 ^a (n=254)

Note: Different superscripts within row indicate significant difference at $p < 0.05$

Experiment with Methods to Reduce Item Nonresponse (IP6)

Weighted item nonresponse rates by treatment; mixed mode and face-to-face designs

	Mixed Mode Outcomes			Face-to-Face
	Control	Reactive	Follow-Up	
Gross pay	0.150	0.129	0.185 ⁺	0.118
Interest/Dividends	0.209 ⁺	0.146	0.192 ⁺	0.136
Net Profit	0.583 ⁺	0.452	0.228 ⁻	0.404
Hourly Pay	0.108	0.057	0.166 ⁺	0.061
Marital Status Change	0.016	0	0	0
Total	0.180 ⁺	0.127	0.156 ⁺	0.120

+ indicates mixed mode outcome significantly greater than face-to-face only outcomes at $p < 0.05$

- indicates mixed mode outcome significantly less than face-to-face only outcomes at $p < 0.05$

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- Analysis methods to deal with such effects are un(der)developed
- Suggests a focus on minimising measurement differences at source, rather than adjusting.
- But this is difficult/impossible for an existing survey with existing measures

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- Amongst the rest, the strategy is to use web solely as a means of retaining sample members who would otherwise become non-respondents
- Web will be introduced as a primary mode only for previous wave non-responding households (at wave 7; 2015)
- It will also be introduced as a secondary mode (actually, a mode of last resort) at the refusal conversion / mop-up stage



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An initiative by the Economic and Social Research Council, with scientific leadership by the Institute for Social and Economic Research, University of Essex, and survey delivery by NatCen Social Research and TNS BMRB