

Methods to Reduce Attrition in Longitudinal Surveys

An experiment

L.Fumagalli, H. Laurie, P. Lynn

ISER, University of Essex

ESRC Survey Design and Measurement Initiative programme on
Understanding non-response and reducing non-response bias

European Survey Research Association conference
Warsaw, June 29th -July 3rd, 2009

Why should we study efficient forms of reducing panel attrition?

- ▶ **sample size**
- ▶ **non response bias**: Those dropping out from the panel are different from the stayers.
 - ▶ bias on parameter estimates
 - ▶ bias on estimates of change measures
- ▶ **possibility of tailoring**: longitudinal detailed information on sample members can make it possible to set up a tailored strategy to reduce non response bias (Couper and Ofstedal, 2006; Laurie and Lynn, 2008; Groves and Couper 1998)
- ▶ **costs reduction**: minimizing the costs of tracking

panel attrition at a glance.

Two major sources of panel attrition (Laurie et al. 1999)

- ▶ geographical mobility of sample members
- ▶ panel fatigue

A non unitary model of panel attrition (Lepkowski and Couper, 2002)

- ▶ locating and tracking (Couper and Ofstedal, 2006)
 - ▶ likelihood of moving (non manipulable by the data collectors)
 - ▶ likelihood of contact given move (manipulable by the data collectors)
- ▶ contact
- ▶ cooperation

Previous literature and our contribution

- ▶ comparisons of **alternative tracking methods**: Coen et al 1996, Ribisl et al 1996, Scott, 2004, Couper and Ofstedal, 2006
- ▶ **role of incentives** on response rate (for a review see Laurie and Lynn 2008)
- ▶ relationship between **interest in the topic** of the survey and non response and between participation among less interested respondents and non response bias (see Groves et al. 2006)

- ▶ **No studies carry out a systematic experimental analysis on different strategies of tracking, perhaps combined with alternative incentive schemes.**
- ▶ **very few attempts to assess the effectiveness of strategies tailored to specific categories of non respondents**

Using a interpenetrated experiment, we compare different proactive strategies to reduce panel attrition by explicitly focusing on

- ▶ the consequences of **geographical mobility of sample members**
- ▶ methods for stimulating **interest in the survey.**

Strategies to reduce non response in BHPS

BHPS uses various strategies to reduce non response, including (see also Laurie et al. 1999):

- ▶ an annual pre-fieldwork mailing of a short respondent report of research findings and activities with a confirmation of address card for free-post return.
- ▶ Unconditional gift voucher incentive (£10 per person) sent with advance letter prior to the interview (since w6)
- ▶ sending a £5 gift voucher incentive for any person returning a change of address card between interview points.

- └ The experiment
- └ Design and sample

Our experiment

- ▶ **Interpenetrated design** involving two innovative data collection experiments
 - ▶ Change-of-address cards and incentives, inspired by Couper and Ofstedal (2006).
 - ▶ Form and content of between-wave respondent mailings designed to stimulate loyalty and co-operation.
- ▶ The **sample** for both experiments are the BHPS respondents at wave 17 and the response rates are computed on outcomes at wave 18.
- ▶ The **experimental units** can be either a single individual or a couple (where individuals are in couple and both those in the couple belong to the BHPS sample). Two people belonging to the same units get the same treatment by construction.
Our sample includes 8,833 experimental units: of those 58% are singletons while the reminders are couples

- └ The experiment
- └ Design and sample

Sub experiment on Change-of-address cards and incentives

Seven treatments:

- ▶ Asked to return an address-confirmation card:
 - ▶ with unconditional £5 incentive
 - ▶ with unconditional £2 incentive
 - ▶ with £5 incentive conditional on returning card
 - ▶ with £2 incentive conditional on returning card
- ▶ Asked to return a COA card if moved/moving (standard procedure used on BHPS all waves):
 - ▶ with £5 incentive conditional on returning card
 - ▶ with £2 incentive conditional on returning card
- ▶ Neither AC nor COA card; no incentive

The groups were assigned randomly to units after stratifying the sample by region at wave 17 and then by interviewer area.

- └ The experiment
- └ Design and sample

experiment on tailoring respondent reports

Two treatments with half of sample (4, 416) in each treatment group:

- ▶ **Standard** 'Report to Respondents'
- ▶ **Tailored** report based on respondent characteristics
 - ▶ Report 1 ('**Young**') if aged < 25 (9.3%)
 - ▶ Report 2 ('**Busy**') if self-employed, long work hours or long commute (8.3%)
 - ▶ Report 3 ('Standard') otherwise (82.4%)

- └ The experiment
- └ Design and sample



Figure: respondents report for busy people

- └ The experiment
- └ Design and sample

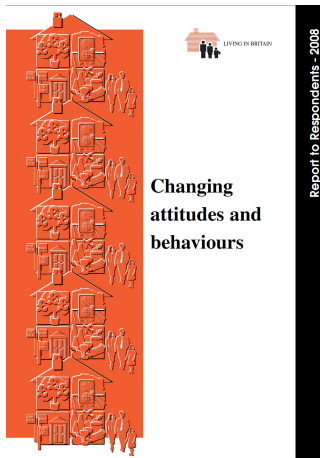


Figure: standard respondents report

Return behaviour: type of treatment

Table: Return behaviour, by type of treatment

<i>card returned</i>	N of return per cell	cell size	% of returns
1=unconditional	909	2235	40.7
2=conditional on return	749	2229	33.6
3=cond on move and return of new address	318	2200	14.5
4=no incentive	156	2213	7.0
tot	2132	8877	24.0

All the pairwise differences between return rates are significant at 1 percent significance level.

Return behaviour: amount of the incentive

Table: Return behaviour, by treatment type and amount of the incentive

<i>card returned</i>	n	cell size	% of returns
1=unconditional, 5£	462	1124	41.1
2=unconditional, 2£	447	1111	40.2
3=conditional on return, 5£	396	1125	35.2
4=conditional on return, 2£	353	1104	32.0
5=cond on move and return of new address, 5£	147	1104	13.3
6=cond on move and return of new address, 2£	171	1096	15.6
7=no treatment, 5£	73	1111	6.6
8=no treatment, 2£	83	1102	7.5
	2132	8877	24.0

Table: ttests on differences of returning behaviour within type of treatment

	1vs2	3vs4	5vs6	7vs8
Two tails tests	ns	ns	ns	ns
One tail test	ns	*	*	ns

Effects on the household response rate

Table: Households' response behaviour, by treatment groups

<i>final hh outcome</i>	unconditional CA		conditional CA		COA		no inc	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
interviewed	2,966	97.02	2,965	96.14	2,973	97.64	2,921	96.82
untraced movers	6	0.2	12	0.39	2	0.07	8	0.2
resident-non contact	14	0.46	11	0.36	15	0.49	25	0.83
refusals	71	2.32	96	3.11	55	1.81	65	2.16
Total	3,057	100	3,084	100	3,045	100	3,019	100

Table: Number of those who could not be traced in the office because they changed address, by type of treatment

<i>no traced due to move</i>	n	cell size	% of returns
1=unconditional	6	3,057	0.2
2=conditional on return	12	3,084	0.4
3=cond on move and return of new address	2	3,045	0.1
4=no inc	8	3,019	0.3
<i>tot</i>	28	12205	0.2

Table: ttests on differences of returning behaviour within type of treatment

	1 vs 2	3 vs 4	1 vs 4	2 vs 3	1 vs 3	2 vs 4
Two tails tests	ns	*	ns	***	ns	ns
One tail test	*	**	ns	***	*	ns

Table: Number of those who could not be traced in the office because they changed address, by type of treatment and amount of the incentive

<i>no traced due to move</i>	<i>n</i>	<i>cell size</i>	<i>% of returns</i>
1=unconditional, 5£	3	1,535	0.2
2=unconditional, 2£	3	1,522	0.2
3=conditional on return, 5£	9	1,552	0.6
4=conditional on return, 2£	3	1,532	0.2
5=cond on move and return of new address, 5£	1	1,546	0.1
6=cond on move and return of new address, 2£	1	1,499	0.1
7=no inc, 5£	6	1,512	0.4
8=no inc, 2£	2	1,507	0.1
tot	28	12205	0.2

Table: ttests within type of treatment

	1vs2	3vs4	5vs6	7vs8
Two tails tests	ns	*	ns	ns
One tail test	ns	**	ns	*

Table: Effects on tailoring on the response rate of eligible units

outcome	tailored report		standard report	
	Freq.	Percent	Freq.	Percent
full interview	1,819	89.08	1,762	87.75
proxy interview	20	0.98	29	1.44
telephone interview	92	4.51	95	4.73
refusals	54	2.64	59	2.94
ni hh	39	1.91	41	2.04
nc hh	18	0.88	22	1.1
Total	2,042	100	2,008	100

Separating the effects on attrition

Two measures of response rate and two different definitions of analysis units:

- ▶ **respondents**: those responding to a **full face to face interview** or those responding to a **full or telephone interview**.
- ▶ **analysis unit**: treatment units or individuals

In all the cases the analysis base consists of those in **contacted and responding household**

Effect of tailoring on the response rate

		unit level					
		just full			full and telephone		
		n	cell	%	n	cell	%
young	tailored	738	789	93.54	743	789	94.17
	standard	743	812	91.5	763	812	93.97
	tot	1481	1601	92.50	1506	1601	94.07
	one tail ttest		*			ns	
	two tails ttest		ns			ns	
busy	tailored	1,081	1,196	90.38	1,168	1,196	97.66
	standard	1,019	1,133	89.94	1,094	1,133	96.56
	tot	2,100	2329	90.17	2262	2329	97.12
	one tail ttest		ns			*	
	two tails ttest		ns			ns	
		individual level					
young	tailored	676	726	93.11	681	726	93.8
	standard	687	753	91.24	707	753	93.89
	tot	1,363	1479	92.16	1,388	1479	93.85
	one tail ttest		*			ns	
	two tails ttest		ns			ns	
busy	tailored	674	755	89.27	734	755	97.22
	standard	614	698	87.97	665	698	95.27
	tot	1,288	1453	88.64	1,399	1453	96.28
	one tail ttest		ns			**	
	two tails ttest		ns			*	

Preliminary conclusions

- ▶ although treatment 3 (conditional-on-moving-and-return) seems to be less effective in inducing the return of the card than the simple unconditional and conditional-on-return treatment, it seems to perform much better in reducing the number of untraced sample members due to geographical mobility.
- ▶ the amount of the incentive seems to have little effect on the return behaviour and no effect at all on the number of untraced mobile sample members.
- ▶ tailoring the respondent reports seems to be an effective strategy just when applied to young people
- ▶ tailoring seems to have an effect in the case of busy people when telephone interviews are taken into account, but we found no evidence of an effect on getting a full interview
- ▶ tailoring seems to be more effective for busy people if implemented at individual level possibly due to characteristics of those busy people.

What's next?

- ▶ personal characteristics of non respondents
- ▶ effects on other measures of effort in contact (e.g. number of calls)
- ▶ analyse spillover at household level