Leading education and social research
Institute of Education
University of London

Can encouraging respondents to contact interviewers to make appointments boost co-operation rates and save costs?

Evidence from a randomised experiment in the UK

Matt Brown and Lisa Calderwood

CLS Working Paper 2013/9

September 2013

Centre for Longitudinal Studies
Following lives from birth and through the adult years
www.cls.ioe.ac.uk

CLS is an ESRC Resource Centre based at the Institute of Education, University of London

Can encouraging respondents to contact interviewers to make appointments boost co-operation rates and save costs? Evidence from a randomised experiment in the UK

Matt Brown and Lisa Calderwood

Draft 8, September 2013

DRAFT – PLEASE DO NOT QUOTE WITHOUT PERMISSION

Contact the authors:

Matt Brown
Institute of Education, University of London
Email: m.brown@ioe.ac.uk

Lisa Calderwood
Institute of Education, University of London
Email: l.calderwood@ioe.ac.uk

First published in September 2013 by the
Centre for Longitudinal Studies,
Institute of Education, University of London
20 Bedford Way
London WC1H 0AL
www.cls.ioe.ac.uk

ISBN 978-1-906929-68-8

The Centre for Longitudinal Studies (CLS) is an Economic and Social Research Council (ESRC) Resource Centre based at the Institution of Education (IOE), University of London. It manages three internationally-renowned birth cohort studies: the 1958 National Child Development Study, the 1970 British Cohort Study and the Millennium Cohort Study. For more information, visit www.cls.ioe.ac.uk.

This document is available in alternative formats.
Please contact the Centre for Longitudinal Studies.
tel: +44 (0)20 7612 6875
email: clsfeedback@ioe.ac.uk

Contents

Non-technical summary

On most social surveys, interviewers spend lots of time and effort making visits to home addresses and/or making phone calls to try to make contact with the persons or households chosen for the survey. The amount of time and effort spent doing this could potentially be reduced by asking respondents to contact the interviewer themselves to book an appointment for the interview, rather than waiting for the interviewer to contact them. For cross-sectional surveys, this is unlikely to be very successful, and may lead to more refusals, as respondents are new to the survey and interviewers are usually needed to persuade them to take part. However, on longitudinal surveys, which follow the same people over time, many respondents don't need to be persuaded to take part each time and may prefer the convenience of booking their own appointment. This approach, referred to as the 'early-bird', was successfully introduced on a major longitudinal survey in the US, the 1979 cohort of the National Longitudinal Surveys of Youth (NLSY79), who offered their respondents an additional financial incentive payment to book their own appointment. In this paper, we describe the results from a randomised experiment designed to test whether this approach could work on a major longitudinal survey in the UK. As financial incentives are not used as widely in the UK as in the US, we also compared the effectiveness of using an incentive to encourage take-up of this 'early-bird' offer with an appeal to altruism. We found that fewer interviewer calls were needed for respondents who took up this offer, and that the financial incentive was more effective at encouraging people to take up the offer than the appeal to altruism. However, because relatively few people took up the offer, there was no overall reduction in the amount of fieldwork effort required on the survey. This implies that if more people took up this offer it may lead to cost savings. Future research should therefore look at ways to encourage more respondents to book their own appointment for the interview.

Abstract

Within an international context of declining survey response rates and increasing survey costs, there is increasing emphasis on finding innovative ways to maintain response rates and improving the cost-effectiveness of fieldwork effort. One of the main components of survey costs is interviewer call attempts associated with making contact. An innovative approach to reducing these costs, pioneered by the National Opinion Research Center (NORC) on the 1979 cohort of the National Longitudinal Surveys of Youth (NLS79) in the US, is to encourage, using an additional incentive, sample members to initiate contact and book an appointment for their interview, rather than waiting for an interviewer to contact them. This paper describes a randomised experiment, conducted on the Innovation Panel of *Understanding Society*: the UK Household Longitudinal Study (UKHLS) in 2011, which sought to evaluate whether this 'early bird' approach could be successful in a UK context. Our experiment also included a treatment group who were not offered an incentive to become an 'early-bird' and were instead encouraged to book an appointment by an

appeal to altruism. We found that significantly fewer call attempts were required for households who took up the early-bird offer. Our experimental and analytical approach meant that we were able to robustly attribute this reduction to the take-up of the offer. No impact on response rates was detected. We also found that although some respondents took up the offer as a result of the appeal to altruism, a higher proportion did so when an incentive to become an 'early-bird' was offered. However, overall the take-up of the early-bird offer was relatively low, and much lower than on NLSY79, and for this reason there was no overall reduction in fieldwork effort. This implies that the early-bird approach has the potential to reduce costs, but that further research is needed to examine ways of encouraging a higher proportion of respondents to set-up appointments for themselves.

Key words: longitudinal; non-response; incentives; call attempts; randomised experiment; appointments

Acknowledgements

This research was supported by the Resource Centre funding for the Centre for Longitudinal Studies from the Economic and Social Research Council (ESRC) [RES-579-47-001] and the ESRC funding for Innovation Panel of *Understanding Society*: the UK Household Longitudinal Study (UKHLS) [RES-586-47-0002]. We would like to thank Professor John Micklewright at the Institute of Education for helpful comments on drafts of this manuscript and Jonathan Burton and Noah Uhrig at the Institute of Social and Economic Research, University of Essex, and researchers and field staff at the National Centre for Social Research (NatCen), for their work on implementing the experiment described in this paper on Wave 4 of the Innovation Panel in 2011.

Introduction

Survey response rates have declined in many countries over recent decades (de Leeuw and de Heer, 2002) and survey costs have risen (Stoop, 2005). It is becoming increasingly expensive to maintain response rates; extended fieldwork efforts, such as reissuing and multiple call attempts are required more often, and incentives are becoming more widespread. Within this context, survey methodological research and practice has become increasingly concerned with finding innovative ways to maintain response rates and improve the cost-effectiveness of fieldwork effort.

One of the main components of survey costs are interviewer call attempts associated with making contact with sample members. The number of calls required to achieve an interview has been increasing over time on major cross-sectional surveys in the UK and US (Lynn and Clarke, 2002; Curtin et al., 2000). However, longitudinal surveys have several advantages over cross-sectional surveys in relation to reducing the costs associated with interviewer call attempts. Information from prior waves can be used to inform the best time to call, and less expensive contact methods can be used, e.g. phone calls rather than face-to-face visits, particularly for committed sample members who are unlikely to need persuading to take part.

An innovative approach to reducing the costs associated with interviewer call attempts, pioneered by the National Opinion Research Center (NORC) on the 1979 cohort of the National Longitudinal Surveys of Youth (NLSY79) in the US, is to encourage sample members, through the provision of an additional incentive, to initiate contact and book an appointment for their interview prior to the start of fieldwork, rather than wait for an interviewer to contact them. This novel 'early-bird' approach has the potential to significantly reduce the number of interviewer call attempts and to increase the overall response rate via the increased incentive. On NLSY79, they found that, among those taking up the offer, there was a significant reduction in fieldwork costs and a slight increase in response rate (Kochanek et al., 2010). However, it is not clear that this reduction in fieldwork effort and increase in response rate can be robustly attributed to the 'early bird' innovation, as alternative explanations such as selection effects cannot be ruled out.

This paper describes a randomised experiment, conducted on the Innovation Panel of *Understanding Society*: the UK Household Longitudinal Study (UKHLS) in 2011, which sought to evaluate whether an 'early bird' approach could be successful in a UK context. To our knowledge, this was the first time that such an approach had been used on a major UK longitudinal survey, and the first time anywhere that this approach has been robustly evaluated using a randomised experimental approach. The NLSY79 did not introduce this innovation experimentally. As UK surveys are typically carried out face-to-face, rather than by phone as is often the case in the US, there is potential for this 'early-bird' approach to deliver even greater cost-savings in the UK than in the US.

Another major difference between the US and the UK, and one reason why survey costs in the US are typically higher, is that high-value respondent incentives are standard practice on most US surveys. Although incentives are becoming more widespread in the UK, and are used on the UKHLS, they tend to be much lower value. There are also several major longitudinal surveys in the UK, such as the British Birth Cohorts, which do not use incentives at all. For this reason, our experiment also included a treatment group who were not offered an additional incentive and instead encouraged to become an 'early-bird' by an appeal to altruism.

We found that significantly fewer call attempts were required for households who took up the early-bird offer. Our experimental and analytical approach meant that we were able to robustly attribute this reduction to the take-up of the offer. No impact on response rates was detected. We also found that although some respondents took up the offer as a result of the appeal to altruism, a higher proportion did so when an additional incentive was offered. However, overall the take-up of the early-bird offer was relatively low, and much lower than on NLSY, and for this reason there was no overall reduction in fieldwork effort. This implies that the early-bird approach has the potential to reduce costs, but that further research is needed to examine ways of encouraging a higher proportion of respondents to set-up appointments for themselves.

Background

There is widespread empirical evidence that maintaining response rates on probability surveys is becoming increasingly difficult and expensive in both the UK and the US. Extended fieldwork efforts, such as multiple call attempts and refusal conversion, are required more often and financial incentives are increasingly being used, at higher and higher values, to persuade sample members to take part.
One of the main components of fieldwork effort, and hence overall survey costs, are interviewer call attempts associated with making contact with sample members and persuading them to take part. The number of calls required to achieve an interview has been increasing over time on major cross-sectional surveys in the UK and US (Lynn and Clarke, 2002; Curtin et al., 2000). One of the main differences between the UK and US is that most large-scale probability surveys in the US are carried out by telephone, whereas in the UK face-to-face data collection is usually used. Reducing the costs associated with call attempts is particularly attractive for face-to-face surveys in which the cost of interviewer call attempts is much higher than on telephone surveys. Even where assignments are clustered, speculative face-to-face calls can be a relatively inefficient use of fieldwork resources as there are many call attempts where no contact is made. Arguably, this approach is an outdated one; societal changes, particularly the growth in single-person households and increasing female labour market participation, mean that it is increasingly difficult for interviewers to make contact in this way. Similarly on telephone surveys, the growing use of mobile technology is making 'traditional' phone survey approaches increasingly difficult.

For cross-sectional surveys, the scope for improving the efficiency of call attempts is limited, as there is often little or no frame information available about the characteristics of sampled households or persons. However, on longitudinal surveys, the efficiency of call attempts can be improved using information from prior waves about the best time to call, and by using multiple modes of contact. Several major longitudinal surveys in the UK with face-to-face data collection now use phone as the primary method of contact rather than visits and this has led to significant savings in fieldwork costs. On an ongoing longitudinal study, most sample members understand what the survey involves and are likely to be keen to take part again. In this context, the interviewers' role at this stage is largely confined to making contact and fixing an appointment for the interview which can be done much more efficiently over the phone.

However, this approach remains 'interviewer-centric', in the sense that interviewers are in control of when they attempt to contact sample members, and when they offer appointments for. Sample members, particularly in longitudinal surveys, may prefer to take greater control over their participation in the study, rather than waiting for the interviewer to initiate contact with them. Although the contact details of the interviewer or survey agency are typically made available on survey materials, sample members are not actively encouraged to initiate contact with interviewers to set up their own appointment, even on longitudinal surveys. This is perhaps surprising as encouraging this could potentially lead to a significant reduction of fieldwork effort and survey costs.

Respondent incentives are another major component of survey costs, and they are increasingly being required to maintain adequate response rates. There is widespread evidence that incentives boost response rates on mail, telephone and face-to-face surveys (Church, 1993; Singer et al., 1999) and a large literature on how they should be administered and their impact on bias (Singer, 2002; Bruderl et al, 2008). Laurie and Lynn (2009) review current practice in relation to the use of incentives on a wide-range of large-scale longitudinal studies around the world. This reveals that the use of relatively high value (around $40-$80) incentives paid in cash or by cheque tends to be standard practice on US studies whereas in the UK incentives, where they are used, tend to be lower value (around £10) and paid in kind, e.g. a gift voucher. Undoubtedly, the growing use of incentives is a contributory factor to increasing survey costs over time and the higher value and more widespread use of incentives is one reason why survey costs are higher in the US compared with the UK.

For these reasons, incentives are generally viewed as worthwhile in terms of increasing response rates and reducing non-response bias. However, incentives are a relatively inefficient use of resources as many respondents who receive them would have taken part without this payment. Despite their expense and widespread use, there is relatively little research on the cost-effectiveness of incentives. Some studies looking at the impact of incentives on fieldwork costs (James, 1997; Rodgers; 2002) found that the incentive reduces the number of calls interviewers

need to make in order to achieve an interview. Targeting incentives to sub-groups of sample members who would be unlikely to take part otherwise would be a more efficient use of resources but many studies are reluctant to do this due to ethical concerns about equal treatment of sample members (Singer, 2002). Some longitudinal surveys have found that targeting incentives towards those who didn't take part at previous waves can be effective (Martin et al., 2001; Rodgers, 2002; Laurie and Lynn, 2009). Overall, there has been a trend in the US, and recently in the UK, towards higher value incentives and some surveys have experimented with increasing the amount of incentive offered to find the 'price' at which participation of reluctant respondents can be secured. Arguably, this trend is a reflection of the increasing 'commodification' of the survey process where respondents are literally paid to take part in surveys and reimbursed financially for their time. Although this may be an effective way of maintaining response rates, it is clearly an expensive way of achieving this. There are also ethical concerns about the extent to which the use of high-value incentives undermines the voluntary nature of survey participation and the impact this might have on data quality, e.g. whether the respondents will give honest answers.

Given these concerns and the high cost of incentives, this raises a question about whether incentives are the only solution to the problem of declining response rates and whether alternative ways of motivating sample members to take part in surveys can be found. There is an extensive empirical and theoretical literature about non-monetary reasons for taking part in surveys. For example, Groves, Cialdini and Couper (1992) discuss the applicability of a number of concepts from social psychology to the decision to take part in a survey. In particular, they discuss the "helping tendencies" of individuals and argue that compliance with requests is more likely if the request to participate in a survey includes an appeal to helping norms. However, given that response rates have been falling over the last 20-30 years, it seems possible that 'traditional' non-monetary motivations for taking part in surveys are weakening. It may be that, for example, appeals to take part in surveys due to the societal benefits they promise may hold less sway in an increasingly individualistic culture.

An example of an innovative fieldwork strategy which aimed to both improve response rates and reduce survey costs is the 'early-bird' approach developed by the NORC for the NLSY79 in the US. This approach was novel in that that it attempted to shift the established balance of power from the interviewer to the respondent by giving sample members the opportunity to set-up their interview appointment, thereby taking control of their participation in the survey. The 'early bird' innovation was introduced on wave 20 of the 1979 cohort (NLSY79) in 2002 and further tested on wave 21 in 2004 and 22 in 2006. On these waves, it was only offered to sample members who had been mostly co-operative for the previous four rounds, though it was subsequently rolled out to everyone in the sample at later waves. The main aim of this approach was to reduce the survey costs associated with the multiple call attempts required by interviewers to make contact with sample members. On the NLSY79, both the call attempts and the interview itself are carried

out by phone. A letter was sent two weeks before the start of fieldwork encouraging sample members to call the Early Bird toll-free number to set up an appointment for their interview. This approach took its name from the common saying 'the early-bird catches the worm', and the metaphorical 'worm' in this case was an additional incentive payment to be paid to those who made an appointment for the interview within four weeks of receiving the letter. This early bird incentive was additional to the standard $40 incentive for taking part in the survey. In 2002 the early-bird incentive offered was $40. In 2004 and 2006, two different incentive values, $60 and $80, were tested experimentally.

Clearly, the higher the proportion of sample members who took up the early-bird offer, the greater the cost savings achieved through the reduction in call attempts. The main purpose of the early-bird incentive was therefore to encourage sample members to respond to the early-bird offer. However, the indirect effect of the additional early bird incentive was to increase the overall amount of the incentive that can be received for taking part in the survey; from $40 to $80 in 2002 and from $40 to $100/$120 in 2004 and 2006. Proportionately this is a 100% increase in 2002 and up to a 200% increase in 2004 and 2006. It is also likely therefore, that the early-bird offer would increase the overall response rate, among those given the offer, due to this big increase in the total value of the incentive payment.

The researchers (Kochanek et al., 2010) found that, on waves 21 and 22, almost half (48% and 49% respectively) of sample members who were offered the early bird incentive took advantage of it and that there was no difference in the take-up rate between those who were offered $60 and those who were offered $80. At wave 21, the response rate among sample members who received the early-bird offer was no different to the sample overall (both 81%) but at wave 22 the response rate was slightly higher among those who were offered the early-bird and the sample overall (83% compared with 80% overall). This may have been because at wave 22 the early-bird offer was given to a lower proportion of the overall sample than at wave 21 (54% compared with 65%), particularly if they were, on average, a more co-operative sub-sample. Most strikingly, they found that the cases which took-up the early bird offer took on average three hours of interviewer time to complete compared with five hours for non early-bird cases. The overall conclusion of the authors was therefore that the 'early-bird' innovation had lowered fieldwork costs and reduced fieldwork effort for the most cooperative respondents, which meant that field resources were freed up for more difficult cases.

However, as the sample members who were given the early-bird offer were a sub-sample comprising of the most co-operative respondents, one might expect that they would require less fieldwork effort, and have a higher response rate, regardless of the offer. Additionally, those who took up the offer were a self-selecting group, likely to be the most willing respondents, who again may have required fewer calls and had a higher response rate, even if they hadn't taken up the offer. It is therefore not possible to definitively attribute the lower level of fieldwork costs observed for early-bird cases, or the higher response rate at wave 22, to the early-bird intervention. In

addition, even if this reduction in fieldwork costs could be attributed to the early-bird intervention, it is unclear whether these cost savings were sufficient to outweigh the extra costs of the additional early-bird incentive.

This paper aims to evaluate whether the 'early-bird' approach could be successful on longitudinal surveys in a UK context and, in particular, sets out to explore whether sample members can be motivated to be an 'early-bird' without an additional incentive. Clearly, if it was possible to motivate sample members to book appointments without the use of incentives, this would lead to even greater cost savings.

In contrast to the US 'early-bird' investigation, we carried out a randomised experiment, including both incentive and non-incentive treatment groups, on a major UK longitudinal survey in 2011. Our results therefore provide robust experimental evidence about the impact on response rates and fieldwork effort of the 'early-bird' approach, new comparative evidence about this approach from the UK and experimental evidence on the use of incentives. Overall, these findings make an important contribution to the survey methodological literature on fieldwork efficiency, the use of incentives and non-response.

Design and implementation of the experiment

Survey context

The experiment described in the paper was carried out on the Innovation Panel of *Understanding Society:* the UK Household Longitudinal Study (UKHLS). The UKHLS is a major new household panel study with a sample of 40,000 households which are interviewed annually. Interviews are attempted with all adult household members. The Innovation Panel is a sample of around 1,500 households in which, like the main study, all household members are interviewed annually. The main purpose of the Innovation Panel is to develop and evaluate methodologies for longitudinal survey data collection and, from wave 3 onwards, there has been an open call for proposals for experiments to be carried out on the panel. This experiment was carried out as part of wave 4 of the Innovation Panel in 2011. The main differences in the survey context between UKHLS and NLSY79 are that the UK survey is a household panel survey involving multiple respondents per household whereas the US survey is a sample of individuals. UKHLS is carried out face-to-face whereas the NLSY79 is primarily conducted by telephone. Finally the NLSY79 respondents have been taking part since 1979 and early-bird innovation was introduced on wave 20, whereas the UKHLS started very recently, in 2008, and the wave on which the experiment was carried out was only the fourth time the sample members had been visited.

Experimental design and hypotheses

The main aims of the experiment were to assess the impact of the early-bird innovation on the overall response rate and on total fieldwork effort as measured by interviewer call attempts, and to compare the effectiveness of financial incentives and an appeal to altruism in encouraging take-up of the early-bird offer. For this reason, there were two experimental groups who both received the early bird offer, but with different encouragements to take it up. One group was offered a financial incentive for being an 'early-bird' and the other received an appeal to altruism, instead of a financial incentive, to encourage take-up of the offer. There was also a control group who did not receive the early-bird offer. All experimental groups, including the 'no incentive' early-bird treatment group, received a standard incentive for participation in the survey. So, in the 'incentive' treatment group, the early-bird incentive was additional to the standard incentive, whereas in the 'no incentive' treatment group, only the standard incentive was received.

Only cooperative households, i.e. those which had taken part at the previous wave of the innovation panel, were included in the experiment. Households were randomly allocated to one of the three equally-sized experimental groups. Households in which one or more of the household members was known or suspected to have left the household since the last wave were excluded from the experiment as it would have been difficult operationally to ensure the correct treatment was applied in these circumstances.

Table 1 summarises the design of the experiment and provides details on the size of the experimental groups.

Table 1: Design of the experiment and number of cases in each group

Group	Treatment	Number of cases	Percent
1	Early Bird Offer – Incentive	347	31.9
2	Early Bird Offer – No incentive	366	33.6
3	Control Group - No Early Bird Offer	375	34.5

Both of the treatment groups were given the early-bird offer. They were told that 'This time around we're giving you the opportunity to get in touch with your interviewer to arrange a time for your interview. By doing this, you'll be able to pre-book an appointment at a time which is convenient for you'.

Sample members in the 'incentive' treatment group were offered an extra £5 each for pre-booking an appointment. The incentive for taking-up the early-bird offer was at the individual level, so, for example, in a four-person household this would amount to

an extra £20 in total. The household context of UKHLS meant that the incentive was paid to all household members who were subsequently interviewed if any household member contacted the interviewer to pre-book an appointment, i.e. only one person from each household had to take up the offer for everyone who was subsequently interviewed to get the reward. This was explained to sample members: “If you do get in touch to make an appointment, we’ll give everyone in your household who is interviewed an extra £5 to say thank you”.

As on NLSY79, the early-bird incentive was additional to the standard incentive amount for taking-part in the survey. On UKHLS, both the early-bird and the standard incentives were conditional and were paid after the interview in the form of a high-street voucher, whereas on NLSY79 the early-bird incentive was paid upon booking an appointment and both incentives were paid by cheque. The incentive amounts were also much lower on UKHLS than on NLSY79. The standard incentive amount for a successful interview was £5. However, wave 4 of the innovation panel included a parallel incentive experiment testing the impact of a higher (£10) incentive. The £5 early-bird incentive therefore represented a 100% or 50% increase on the standard per person payment. Although this differential proportional increase in the amount received was not explicitly part of our experimental design, it allows us to examine the impact of this on the take-up rate of the early-bird offer and on response rates. As discussed earlier, on the NLSY79, the early-bird incentive represented a minimum 100% increase on their standard incentive payment and they found that increasing the early-bird incentive amount did not increase the take-up rate of the early-bird offer.

Sample members in the ‘no incentive’ treatment group were encouraged to become early-birds through an altruistic appeal to their ‘helping tendencies’ (Groves, Cialdini and Couper, 1992). They were told that contacting the interviewer to pre-book their appointment will ‘make your interviewer’s life much easier as they will not have to make repeated telephone calls or visits to your home in order to try and reach you’. The incentive and control groups were not told this. The ‘no incentive’ group, and the control group, still received the standard incentives for participation in the survey.

Our experimental hypotheses were that both the take-up rate to the early-bird offer and overall survey response rate would be higher in the ‘incentive’ treatment group than the ‘no incentive’ treatment group but that there would be some take-up of the early-bird offer in the ‘no incentive’ treatment group. We hypothesised that the response rate overall would be higher in the ‘incentive’ treatment group, due to the increase in the total amount of the incentive on offer. We did not anticipate an increase in the overall response rate in the ‘non-incentive’ treatment group. We further hypothesised that both the take-up of the early-bird offer and the overall response rate would be higher among cases which were offered the higher standard incentive for participation in the survey, due the higher total incentive on offer.

In terms of the characteristics of those taking up the early-bird offer, we expected that the opportunity to pre-book the interview appointment would be most attractive

to sample members with the busiest lives, such as the employed and those with young children. We also expected that the take-up rate would be higher among larger households, as there are more people available to do so.

In relation to fieldwork effort and survey costs, the early-bird approach is designed to lower the overall amount of fieldwork effort through a reduction in the number of interviewer calls needed for cases which take-up the offer. If sample members book their own interview appointment, this means that the interviewer calls to make first contact and set up an appointment are no longer required. We therefore hypothesised that the average number of interviewer calls required to complete an interview would be lower for 'early-birds' than for other interviewed cases who did not take-up (or were not given) the offer, and that this would translate into a lower average number of calls overall and therefore a reduction in total fieldwork effort. Clearly the higher the take-up rate of the early-bird offer, the greater the potential for an overall reduction in interviewer calls and fieldwork effort.

As noted earlier, one of the challenges in evaluating the impact of the early-bird innovation is that those taking up the offer are a self-selecting group. It is likely that those sample members who take-up the offer differ from those who do not in ways which may also affect their likelihood to take part in the survey and the amount of fieldwork effort required to interview them. More specifically, it is plausible to hypothesise that those taking-up the offer will be the most cooperative respondents, who may have had a higher response rate and required fewer call attempts regardless of the offer.

Our aim is therefore to ascertain whether any observed differences between those who did take up the early-bird offer, and those who did not (including those in the control group who weren't given the offer), can be robustly attributed to the fact that they took up the offer, and to rule out alternative explanations, such as selection effects among those who took up the offer. We use three different analytical approaches in order to investigate this.

Firstly, we analyse the impact of the treatment on all cases for whom there was an intention to treat, i.e. not just those who took up the offer. This is a common approach in randomised control trials. We take this approach to measuring the impact of the early-bird innovation for all cases on the overall response rate and total fieldwork effort.

Secondly, we use propensity score matching to identify a matched comparison group among the control group with similar characteristics to those who take up the early bird offer in the treatment groups. Comparing the number of calls required for the 'early-birds' with this matched comparison group will allow us to demonstrate that any differences in the number of calls required were due to the take-up of the early-bird offer, rather than explained by other characteristics of the early-birds.

Thirdly, we exploit the longitudinal nature of the survey to carry out a pre- and post-test evaluation, i.e. we compare the number of calls required at wave 4 with the number of calls that were required at wave 3. If a difference is observed only for those who take-up the early bird offer, and not for other sample members, we can be more confident in attributing this difference to the fact that they took up the offer.

Implementation of the experiment

Advance letters were posted to the two 'early bird' treatment groups approximately three weeks before fieldwork began. The advance letters were at individual level, i.e. all sample members within the household received a letter, rather than one per household. These letters informed sample members that the next wave of the study was about to begin and explained that their household was being provided with "the opportunity to request an "Early Bird Appointment" by contacting your interviewer on their mobile phone before anyone else to arrange your interview at a time that best suits you". The mailing also contained a leaflet entitled "Want to be an Early Bird?" which provided more information about the early bird offer. Different versions of the leaflet were produced for the two experimental groups. The design was identical in both versions but the text of the leaflet varied slightly in line with the experimental treatment. Copies are included in the Appendix.

The leaflet specified a two-week window prior to the start of fieldwork in which sample members could get in touch with their interviewer to book an appointment. During this two-week window, interviewers were instructed not to attempt to contact sample members. Once fieldwork started, interviewers were able to begin contact attempts. Sample members were able to pre-book their interview for any day in the four-week data collection period which was stated in the leaflet.

As the Innovation Panel involves face-to-face home visits, sample members were encouraged to contact the interviewer directly to book an appointment, rather than to phone a central number as on NLSY79. In order to facilitate this, all interviewers working on the study were issued with a mobile telephone and these numbers, along with the interviewers' name, were included in the advance letters and leaflets. The leaflet encouraged sample members to send a text message or leave a voicemail message on the interviewer's mobile phone and gave details of what this message should contain i.e. the sample member's name and reference number (which was also mail-merged onto the leaflet), phone number and their preferred interview date and time. It stated that interviewers would call respondents back within 24 hours to 'confirm your choice of interview date and time'. For households allocated to the two Early Bird groups, interviewers kept records detailing whether someone from the household contacted them, the outcome of this contact including whether an appointment was arranged, the date and time of the appointment and the outcome of the appointment.

The control group also received an advance letter which explained that the next wave of the study was about to begin but did not encourage sample members to contact the interviewer and did not include an early bird leaflet.

Results

What was the take-up rate for the early bird offer? And how did this vary by experimental treatment group?

Table 2 shows that overall just under one in ten (9%) of those households in the early-bird groups contacted the interviewer in the two week period prior to the start of fieldwork. Those in the incentive treatment group were significantly more likely to contact their interviewer than those in the non-incentive treatment group (12% compared with 7%) ($p<0.001$).

Table 2 also shows that almost all of those contacting the interviewer did so to arrange an appointment and that the vast majority of these appointments were kept. This was true of both treatment groups. Overall just under 8 per cent of those in the two early-bird treatment groups contacted the interviewer, arranged an appointment and then kept it. Again, those in the incentivised group were significantly more likely to do so than those not incentivised to take up the early-bird offer (10% compared with 6%) ($p <0.05$).

Table 2: Take-up of the early bird offer by treatment group

Experimental group	Contacted interviewer		Made appointment		Number of cases
	n	%	n	%	
Early Bird Offer – Incentive	40	11.5	35	10.1	347
Early Bird Offer – No incentive	24	6.6	20	5.5	366
Any Early Bird Offer	**64**	**9.0**	**55**	**7.7**	**713**

What was the impact of the standard incentive on the early-bird take-up rate?

Table 3 shows that the take-up rate of the early-bird offer among the early-bird incentive group was higher among those who had a higher standard incentive (17% compared with 6%) ($p<0.001$). Among the non-incentive early-bird group, the take-up rate was also slightly higher among those with a higher standard incentive (7% compared with 5%) but this difference was not statistically significant.

Table 3: Take-up of the early bird offer by treatment group and standard incentive amount

Experimental group	Standard incentive amount	Made appointment		Number of cases
		N	%	
Early Bird Offer – Incentive	£5	14	6.4	220
Early Bird Offer – Incentive	£10	21	16.7	126
Early Bird Offer – No incentive	£5	11	4.7	234
Early Bird Offer – No incentive	£10	9	6.8	132
Any Early Bird Offer		**55**	**7.7**	**712**

What was the impact on response rates?

It was hypothesised that the early-bird treatment would have a positive impact on response rates for the 'incentive' treatment group. Table 4 shows that the response rate was actually slightly higher in both early-bird treatment groups than the control group (77% amongst the incentivised group and 78% amongst the non-incentivised group compared with 73% amongst the control group). However, these differences were not statistically significant.

Table 4: Response rate by experimental group

Experimental group	Productive interview		
	N	%	Base
Early Bird Offer – Incentive	266	76.7	347
Early Bird Offer – No incentive	285	77.9	366
Any Early Bird Offer	*551*	*77.2*	*713*
Control group – No Early Bird Offer	274	73.1	375
All	**825**	**75.8**	**1088**

What was the impact of the standard incentive on the response rate?

It was hypothesised that the impact of the early-bird treatment on the response rates would be stronger for those cases which were offered a higher standard incentive. Table 5 shows that the overall response rate by experimental group and standard incentive amount. Among the cases in the early-bird 'incentive' treatment group, there is some support for our hypothesis: the overall response rate is higher for those with a higher standard incentive (79% compared with 76%), though this difference is not statistically significant. However, among the early-bird 'no incentive' treatment group there is no difference in response rate by the standard incentive value, and among the control group, the opposite pattern is observed i.e. a lower response rate among those who received a higher value standard incentive (70% compared with 75%). However, none of these differences are statistically significant.

Table 5: Response rate by experimental group and standard incentive amount

Treatment	Standard incentive amount	Response rate N	%	Base
Early Bird Offer – Incentive	£5	167	75.9	220
Early Bird Offer – Incentive	£10	99	78.6	126
Early Bird Offer – No incentive	£5	182	77.8	234
Early Bird Offer – No incentive	£10	103	78.0	132
Control group – No Early Bird offer	£5	185	74.9	247
Control group – No Early Bird offer	£10	89	69.5	128
All		**825**	**75.8**	**1088**

What was the impact on total fieldwork effort?

Given the selective nature of taking up the early-bird offer, we will evaluate the impact of the early-bird innovation on fieldwork effort by comparing the average number of interviewer visits across the whole sample, rather than just for those who took up the offer. We thereby measure the impact of the treatment on all those for whom there was intention to treat, rather than only those who were treated, which means that our results are not confounded by the selection into the early-bird treatment. Table 6 summarises the number of visits interviewers made to all households by experimental group both overall, and for productive and non-productive cases.

Overall, households in the Early Bird treatment groups required slightly fewer visits on average than those not offered Early Bird (3.2 compared with 3.4), but this difference was not statistically significant. This shows that the Early Bird treatment did not lead to a statistically significant reduction in the total amount of fieldwork effort required in either the 'incentive' or 'no incentive' treatment groups, compared with the control group. However, slightly fewer visits were required on average to households in the early-bird 'incentive' treatment group than to those offered the early-bird without an additional incentive (3.1 compared with 3.2). Although this difference is small and not statistically significant, given that the take-up rate for the early-bird offer was higher in the 'incentive' treatment group and that there was no difference in the response rate between the two treatment groups, it provides indicative evidence that the early-bird treatment may have led to a reduction in the number of calls required for those taking it up, and suggests that the absence of a statistically significant impact on the average number of calls overall may be due to the low take-up rate of the early-bird offer.

Table 6: Number of interviewer visits to all households (by experimental group).

	All cases			**Interviewed cases**			**Non-interviewed cases**		
	Mean	**Std. Dev**	**N**	**Mean**	**Std. Dev**	**N**	**Mean**	**Std. Dev**	**N**
Early Bird Offer – Incentive	3.10	2.29	347	3.21	2.27	266	2.74	2.34	81
Early Bird Offer – No incentive	3.21	2.15	366	3.27	2.05	285	2.99	2.49	81
Any Early Bird Offer	3.16	2.22	713	*3.24*	*2.15*	*551*	*2.86*	*2.42*	*162*
Control group – No Early Bird Offer	3.37	2.22	375	3.44	2.04	274	3.17	2.66	101

Table 6 also summarises the average number of interviewer visits for interviewed and non-interviewed cases. This shows that slightly more calls are required on average for interviewed cases compared with non-interviewed cases, and this difference is consistent across all experimental groups. In the context of a household panel study, the number of visits required will also depend to a large extent on the number of individuals within the household, i.e. how many interviews are required. However, there was no difference between the three groups in terms of the average number of individuals in the household eligible for interview, as one would expect, given the randomised approach used.

What was the impact on fieldwork effort for those taking-up the offer?

Table 7 shows the maximum and mean number of interviewer visits needed to complete all interviewing in households in which a household interview was achieved. On average, around two fewer interviewer visits were required at households who took up the early-bird offer than at interviewed households which were either offered but did not take up early-bird or were not offered the early-bird (1.4 compared with 3.5). This difference was statistically significant (p-value=<0.001). Amongst those who took up early-bird there was no difference in the average number of visits between the incentive and non-incentive treatment groups. There was also no difference between those who were offered the early-bird and did not take it up and those who were not offered the early-bird.

Table 7: Number of interviewer visits required to complete interviewing in households in which a household interview was achieved (by whether Early Bird taken up).

	Mean number of calls	Std. Deviation	Number of cases
Early Bird offer taken up			
With incentive	1.37	0.73	35
No incentive	1.45	1.00	20
All taking up offer	**1.40**	**0.83**	**55**
Early Bird offer not taken up			
Early bird offered - with incentive	3.49	2.29	231
Early bird offered – no incentive	3.41	2.04	265
Early bird not offered	3.44	2.04	274
All not taking up offer	**3.45**	**2.12**	**770**
All	**3.31**	**2.12**	**825**

Although this clearly shows that households taking up the Early Bird offer required fewer visits to complete the interviews, it is not possible to straightforwardly conclude that this reduction in the number of calls required was due to the fact that they took up the early-bird offer. As discussed earlier, there may be other differences between the households who took-up the offer and those that did not which explain why a

lower number of calls was required. We employed two strategies to examine this issue further.

Firstly, we carried out propensity score matching to identify a comparison group among the experimental control group with the same characteristics as those who took up the early-bird offer in the treatment groups. We used one-to-one nearest neighbour matching with replacement, using household size, tenure, family type, income and number of employed household members as the matching variables. Overall, the propensity score matching was successful and the results are shown in Table 8. Further details on the matching method can be found in the Appendix.

Secondly, we exploit the longitudinal nature of the survey to carry out a pre- and post- test evaluation. This involves comparing the number of calls required at wave 4, i.e. the current wave, with the number of calls that were required at wave 3, i.e. the previous wave, for both those who selected into the early-bird treatment and those who did not. If a difference between the pre-test and post-test values is observed only for those who take-up the early bird offer, and not for other sample members, we can be more confident in attributing this difference to the fact that they took up the offer. These results are shown in Table 9.

The propensity score matching provided strong evidence that the reduced number of calls observed among those who took up the early-bird offer was due to the fact that they took up the offer, rather than due to other observed characteristics. Table 8 shows that the number of calls required among those who took up the early-bird offer was significantly lower than the number required among the matched comparison group (1.40 compared with 3.54) ($p<0.001$).

Table 8: Number of interviewer visits required to complete interviewing in households in which a household interview was achieved (by whether Early Bird taken up and matched comparison sample).

	Mean number of calls	Std. Deviation	Number of cases
Early Bird offer taken up	**1.40**	**0.83**	**55**
Matched comparison group	**3.54**	**2.00**	**45**

Similarly, the pre- and post-test approach also provided further evidence that the lower number of calls observed at wave 4 for those who took up the early-bird offer was due to the fact that they took up the offer. Table 9 shows that the number of calls required at wave 4 for those who took-up the early bird offer was significantly lower than the number of calls that these households required to complete all interviewing at the previous wave (wave 3) (1.40 compared with 3.22) ($p=<0.001$). The average number of calls required at wave 4 was also lower than at wave 3 for

those who were offered the early-bird and didn't take it up and those who were not offered the early bird. However, the difference is much smaller for these groups. Moreover, at wave 3, the difference between the three groups in the number of calls required was very small, i.e. less than 0.5 calls compared with more than 2 calls at wave 4.

Table 9: Number of interviewer visits required at wave 3 and wave 4 to complete interviewing in households in which a productive household interview was achieved at wave 4 (by whether Early Bird taken up).

	Mean number of calls at wave 3	Mean number of calls at wave 4	Number of cases
Early Bird offered and taken up	**3.22**	**1.40**	**55**
Early Bird offered and not taken up	**3.74**	**3.43**	**484**
Early Bird not offered	**3.89**	**3.43**	**262**

What were the characteristics of those who took up the offer?

We hypothesised that the opportunity to pre-book an appointment would be of greatest appeal to those whose lives were busiest such as the employed and those with young children. However, Table 10 shows little or no evidence of this. The individuals who contacted interviewers to take up the early bird offer tended to be older (58 years old on average compared with 50 years old for non early-birds) and were significantly more likely to be retired (41% compared with 26%). Overall, early-birds were more than twice as likely to be pensioner household than non early-birds (31% compared with 14%). Three quarters (74%) of the individuals contacting the interviewers were women (though this may be explained by women making the phone call on behalf of couple households.)

We also expected that larger households would be more likely to take up the offer, as there are more people available to do so. However, there was no evidence that the number of people in each household was related to the take-up of the early-bird offer. There was also no difference between early-birds and non early-birds by the number of employed people per household. Early-birds were slightly more likely than non early-birds to be homeowners (82% compared with 72%). There was no difference in average household income between early-birds and non early-birds.

Table 10: Characteristics of the Early Birds

	Early Birds	Non Early Birds	Significant difference
Individual characteristics			
Age (mean)	58.0	50.4	***
Sex (% female)	74.1	53.7	***
% retired	41.4	26.2	**
Household characteristics			
Number of people (mean)	2.2	2.5	-
Number of employed people (mean)	1.0	1.1	-
Household type			
Single pensioner (%)	14.5	15.1	-
Single adult (non-pensioner) (%)	12.7	13.3	-
Lone-parent with children (%)	1.8	5.6	*
Couple with children (%)	9.1	14.1	-
Couple no children (%)	10.9	13.5	-
Couple no children – at least one pensioner (%)	30.9	14.3	***
Other (%)	20.0	24.0	-
Homeowners (%)	81.8	72.2	*
Gross household income in month prior to interview (mean)	£2986	£3070	-

Discussion and conclusions

Our results provide robust experimental evidence that offering a financial incentive to respondents leads to higher take-up of the early-bird offer than an appeal to altruism and that, when taken-up, the early-bird offer leads to a reduction in fieldwork effort required to complete an interview. In our experiment, this did not lead to a statistically significant reduction in the total fieldwork effort required. The main reason for this was the relatively low take-up rate of the early-bird offer. However, this suggests that a higher take-up rate of the early-bird offer, would potentially lead to a reduction in total fieldwork effort. Although there was no statistically significant impact on the overall response rate, it was slightly higher among those who were given the early-bird offer than those who were not. This suggests that the early-bird offer could potentially have a beneficial impact on the overall response rate.

Although the take-up of the early-bird offer was significantly higher among households who were offered an incentive to do so, we nevertheless showed that it was possible to motivate around 1 in 20 sample members to be early-birds without using a financial incentive. This provides some encouragement for surveys on which

incentives are not used and for those without sufficient budgets to provide incentives. Moreover, even among the incentivised group, the take-up of the early-bird offer – around 1 in 10 - was relatively low. The higher take-up rate among sample members in the early-bird incentive treatment group who were offered a standard incentive of £10 rather than £5 also implies that higher value standard incentives, as well as potentially higher value incentives for the early-bird offer, could help to boost take-up rates of the early-bird offer. It seems likely that the main reason why the take-up rate was so much higher on NLSY79 was due to the much higher value incentives used, and that using higher value incentives in the UK would boost the take-up of the early-bird offer.

However, it may also be possible to boost the take-up rate in non-monetary ways. For example, an appeal to the self-interest of the sample members, placing more emphasis on the benefits of taking up the early bird offer for respondents themselves (rather than to the interviewer) could be tried, e.g. the leaflet could mention explicitly that taking up the offer would mean that they would not receive telephone calls or visits from interviewers at inconvenient times. Additionally, different ways of 'marketing' the offer could be investigated, e.g. not using the 'Early Bird' phrase, which may not have resonated with all respondents, and by giving greater prominence to the offer in the survey materials. Further tailoring of the offer to those who are most likely to take-it up could also be explored.

Due to the low take-up of the offer, the early-bird treatment did not lead to a reduction in total fieldwork effort in our experiment. However, we observed that fewer call attempts were required to complete an interview for households who took up the early-bird offer. We used propensity score matching and a pre-and post-test approach to attribute the reduction in fieldwork effort for cases which took up the early-bird offer to the fact that they took up the offer. In doing so, we have provided robust evidence that taking-up the early-bird offer does lead to a significant reduction in fieldwork effort. This provides indicative evidence that if take-up rates were higher, the early-bird approach could lead to a significant reduction in fieldwork effort and therefore survey costs.

Our experiment has clearly shown that the early bird approach has the potential to be a successful way to reduce fieldwork effort and fieldwork costs, and potentially to boost response rates in the context of a major household longitudinal study in the UK. In doing so, we have provided comparative evidence from the UK about an innovative fieldwork approach pioneered on a US study, and made an important contribution to the survey methodological literature on fieldwork efficiency, the use of incentives and non-response.

Overall, our results show that in order to achieve the maximum benefits of the early-bird approach – in terms of increasing response rates and reducing fieldwork effort and costs - further research is needed to examine ways of encouraging a higher proportion of respondents to take-up the early-bird offer and set-up appointments for themselves.

References

Bruderl, J., Castiglioni, L., Krieger, U., and Pforr, K. (2008), "The effects of incentives on attrition bias: results from and experimental study", Presentation to the 1st International Panel Survey Methods Workshop, July, University of Essex, UK.

Church, A. H. (1993), "Estimating the effect of incentives on mail survey response rates: a meta-analysis", *Public Opinion Quarterly,* 57, 62-79.

Curtin, R., Presser, S. and Singer, E. (2000), "The effects of response rate changes on the Index of Consumer Sentiment", *Public Opinion Quarterly*, 64, 413–428.
De Leuuw, E. and de Heer, W. (2002), "Trends in Household Survey nonresponse: A Longitudinal and International Comparison", in *Survey Nonresponse* (eds. R.M. Groves. D.A.Dillman, J.L.Eltinge and R.J.A.Little), New York: Wiley.

Groves, R.M., Cialdini, R.B., and Couper, M.P. (1992), "Understanding the decision to participate in a survey", *Public Opinion Quarterly,* 56, 475-495.

James, T. L. (1997), "Results from the wave 1 incentive experiment in the 1996 Survey of Income and Program Participation", 1997 Proceedings of the Survey Research Methods Section of the American Statistical Association (pp.834-839), Washington, DC: American Statistical Association.

Kochanek, K., Krishnamurty, P., and Michael, R. (2010), "The 'Early Bird' Field Innovation on a 30-year-old Longitudinal Survey', Presentation at the 2nd International Panel Survey Methods Workshop, July, Mannheim, Germany.

Laurie, H. and Lynn, P. (2009), "The User of Respondent Incentives on Longitudinal Surveys", in *Methodology of Longitudinal Surveys* (ed. P. Lynn), Chichester: Wiley.

Lynn, P. and Clarke, P. (2002), "Separating Refusal Bias and Non-Contact Bias: Evidence from UK National Surveys". The Statistician, 51(3), 319-333.
Martin, E., Abreu, D., and Winters, F. (2001), "Money and Motive: Effects of Incentives on Panel Attrition in the Survey of Income and Program Participation", *Journal of Official Statistics,* 17 (2), 267-284.

Rodgers, W. (2002), "Size of Incentive Effects in a Longitudinal Study", American Association for Public Research: Strengthening Our Community – Section on Survey Research Methods.

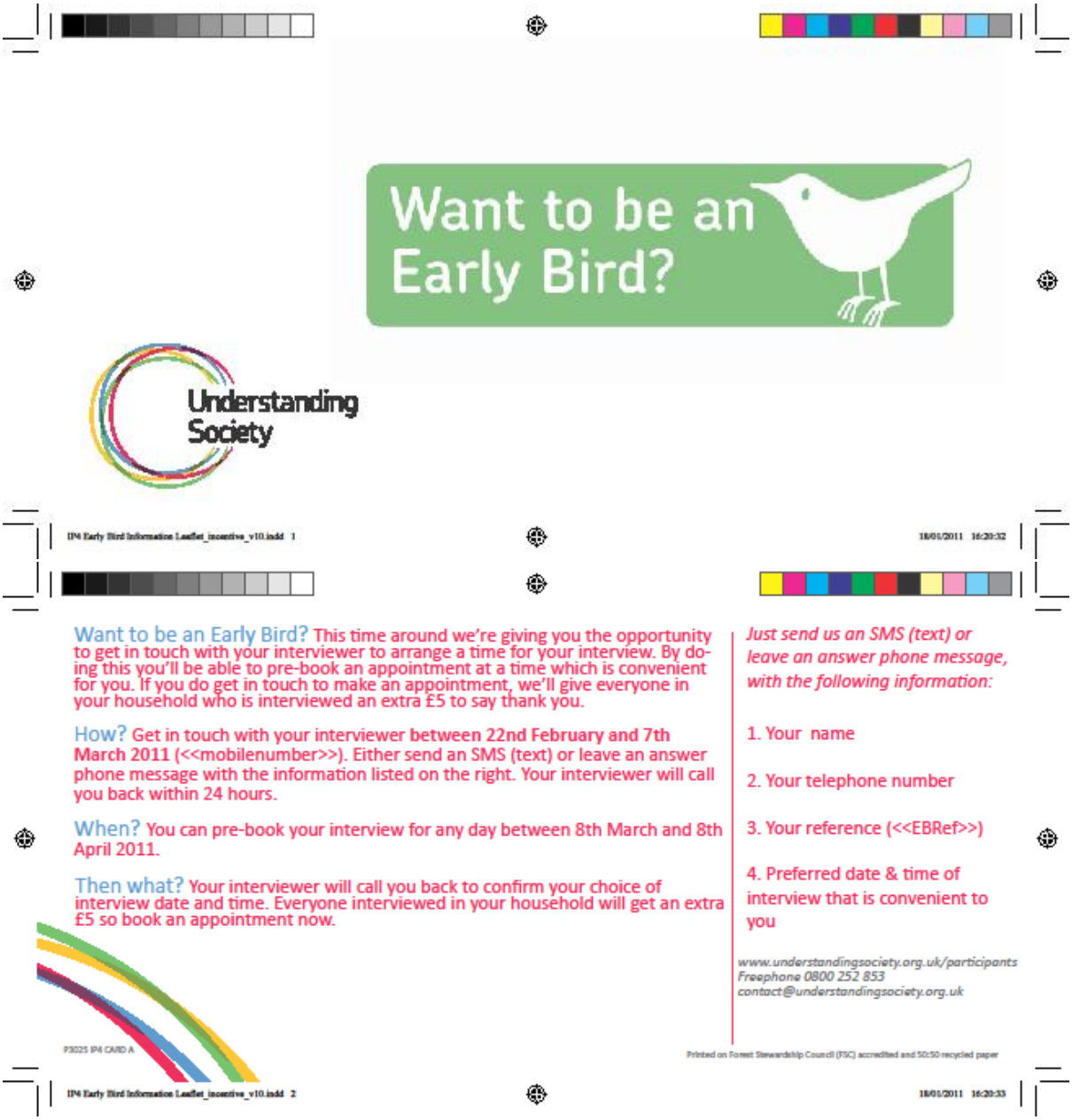
Singer, E., Van Hoewyk, J., Gebler, N., Raghunathan, T., and McGonagle, K. (1999), "The Effect of Incentives on Response Rates in Interviewer-Mediated Surveys", *Journal of Official Statistics,* 15(2), 217-230.

Singer, E. (2002), “The Use of Incentives to Reduce Nonresponse in Household Surveys”, in *Survey Nonresponse* (eds. R.M. Groves. D.A.Dillman, J.L.Eltinge and R.J.A.Little), New York: Wiley.

Stoop, I.A.L. (2005), “The Hunt for the Last Respondent: Nonresponse in sample surveys”, The Hague: Social and Cultural Planning Office of the Netherlands.

Appendix 1 – Participant leaflets

Incentive version



Non-incentive version

Want to be an Early Bird? This time around we're giving you the opportunity to get in touch with your interviewer to arrange a time for your interview. By doing this you'll not only be able to pre-book an appointment at a time which is convenient for you, but will also make your interviewer's life much easier as they will not have to make repeated telephone calls or visits to your home in order to try and reach you.

How? Get in touch with your interviewer between 22nd February and 7th March 2011 (<<Mob_Phone>>). Either send an SMS (text) or leave an answer phone message with the information listed on the right. Your interviewer will call you back within 24 hours.

When? You can pre-book your interview for any day between 8th March and 8th April 2011.

Then what? Your interviewer will call you back to confirm your choice of interview date and time. Be an Early Bird, and book an appointment now.

P3025 IP4 CARD B

Just send us an SMS (text) or leave an answer phone message, with the following information:

1. Your name
2. Your telephone number
3. Your reference (<<EBRef>>)
4. Preferred date & time of interview that is convenient to you

www.understandingsociety.org.uk/participants
Freephone 0800 252 853
contact@understandingsociety.org.uk

Appendix 2 – Propensity Score Matching

Propensity score matching was used to match the 55 households who took up the early bird offer to households with similar characteristics from the participating households in the control group (n=274) of participating controls. The matching algorithm used was one-to-one nearest neighbour matching with replacement and the characteristics on which the matching was based were: household size, tenure, family type, income and number of employed household members.

The logistic regression estimates used to calculate the propensity scores are shown in Appendix Table 1 below:

Appendix Table 1: Logistic regression model to calculate propensity scores

	Coefficient	**Std. Error**	**P**
Household Size	-0.026	0.131	0.841
Gross household monthly income	0.000	0.000	0.929
Number of employed people in household	-0.066	0.134	0.622
Tenure (Ref = Owned outright)			
Owned with mortgage	-0.057	0.236	0.809
Social renter	-0.109	0.286	0.703
Private renter	-0.261	0.357	0.465
Family type (Ref = Single Adult)			
Single pensioner	-0.581	0.361	0.108
Lone-parent with children	-0.901	0.607	0.138
Couple – no children	-0.327	0.421	0.436
Couple with children	-0.565	0.532	0.288
Couple – at least one pensioner – no children	-0.215	0.367	0.559
Other	-0.349	0.517	0.499
Constant	**-0.420**	**0.346**	**0.224**

Pseudo $R^2 = 0.028$

The difference in the mean number of interviewer calls to complete interviewing in the household before matching and after matching is shown in Appendix Table 2 below:

Appendix Table 2: Average number of calls: early birds vs all controls and matched controls

	Early Birds	Controls	Difference	Std. Error	n
All controls	1.40	3.44	-2.04	0.28	274
Matched	1.40	3.63	-2.24	0.35	45

The characteristics of the early bird households and the matched households are compared below in Appendix Table 3 in order to ensure that the two groups are 'balanced'. It should be noted that the 55 households taking up the offer were matched with 45 other controls. There are no significant differences between the early bird households and those they are matched with.

Appendix Table 3: Characteristics of early bird households and matched controls.

	Treated	**Matched Control**	**%bias**	**t**	**P**
Household Size	2.22	2.24	-1.5	-0.08	0.933
Gross household monthly income	£2,986.00	£2,781.20	8.9	0.53	0.600
Number of employed people in household	0.98	1.07	-8.9	-0.49	0.622
Tenure (Ref = Owned outright)					
Owned with mortgage	31.0%	36.4%	-11.5	-0.60	0.549
Social renter	10.9%	9.1%	5.5	0.32	0.753
Private renter	7.3%	10.9%	-13.3	-0.66	0.512
Family type (Ref = Single Adult)					
Single pensioner	14.5%	10.9%	9.9	0.57	0.571
Lone-parent with children	1.8%	1.8%	0	-0.00	1.000
Couple – no children	10.9%	10.9%	0	-0.00	1.000
Couple with children	9.1%	7.3%	5.5	0.34	0.731
Couple – at least one pensioner – no children	30.9%	34.5%	-8.3	-0.40	0.688
Other	20.0%	21.8%	-4.4	-0.23	0.817
Base	**55**	**45**			

Finally the propensity scores for the early bird households were compared with all potential matches in order to ensure that there was common support. Propensity scores for the early bird households ranged between 0.06 and 0.33; scores for all potential matches ranged between 0.04 and 0.33 and so common support was found for all cases.

Centre for Longitudinal Studies
Institute of Education
20 Bedford Way
London WC1H 0AL
Tel: 020 7612 6860
Fax: 020 7612 6880
Email cls@ioe.ac.uk
Web www.cls.ioe.ac.uk