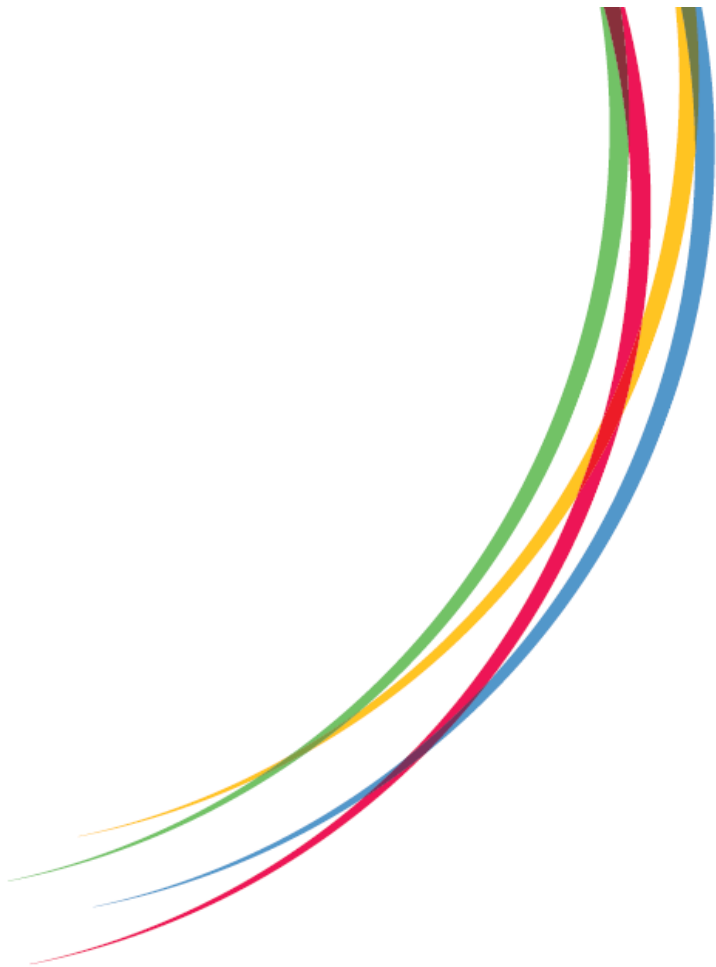




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The Propensity of Older Respondents to Participate in a General Purpose Survey

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Abstract

This paper, 1) outlines some of the challenges in obtaining participation from older sample members in a survey that is not specifically tailored to older people, 2) provides evidence of the relative response propensity of older people in such a survey and, 3) provides experimental evidence of potential influences on age-related response propensity. Specifically, we analyse differences between younger and older sample members in response propensity to each of a number of components of the Understanding Society survey and we examine the interaction between respondent age and each of two experimentally-manipulated features of the Understanding Society Innovation Panel.

Key words: longitudinal survey, mixed mode survey, non-response, older people, respondent incentives, response rate

JEL classifications: C81, C83

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Non-Technical Summary

Survey researchers would like to better understand what motivates older people to take part in surveys. Such knowledge could inform the development of survey practices that aim to maximise participation. This is relevant both for surveys that specifically focus on older people and for surveys in which older people are included as part of a sample of the general population as a whole, though the barriers to motivating people to take part could to some extent be different in the two cases. *Understanding Society* is a survey that falls into the latter category. Data are collected from a complete cross-section of the general population. The survey tackles a broad range of topics, rather than having a narrow focus on a particular issue. Consequently, the survey questions and topics will not be equally relevant to all people in the sample. In particular, several of the survey topics may not seem very relevant to many older people. There is consequently concern that co-operation amongst older people might suffer.

In this paper we explore differences between older and younger sample members in response rates and in reasons why some do not respond. And we look at the effects of certain survey design features that influence response rates, to see if the influence differs between older and younger sample members.

We find that people aged 70 or over are less likely than those aged 60-69 to take part in the survey interview and are the least likely of all age groups to complete the self-completion questionnaire that is requested once the interview has ended. They are also the most likely of all age groups to refuse a second interview a year after the first. The oldest respondents take longest to answer the survey questions, possibly reflecting greater cognitive and functional burden. We also find that offering a £10 rather than £5 gift voucher for taking part improves the response rate for the oldest sample members more than for any other group.

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1. Introduction: Age-Related Response Propensity

The motivations for taking part in a survey, and the barriers to doing so, may to some extent be age-related. In particular, participation mechanisms may be somewhat distinct in the case of older sample members. This can lead to differences between age groups in average participation propensity. These differences can be exacerbated if the survey aims and survey content do not seem particularly relevant to older respondents. In this paper we attempt to identify reasons why response propensity may be age-related, to provide empirical evidence of the association between response propensity and age, and to examine whether certain survey design features, known to affect response propensity on average, have effects which are differential between age groups. The objective is to help researchers to identify the best ways to achieve high levels of survey participation by older people.

Sample members clearly vary in the probability that they agree to a survey request. Some agree very easily, others are extremely resistant, while many lie between those two extremes, perhaps showing mild resistance and requiring some persuasion. Researchers have developed theories to explain why people differ in this respect (Groves and Couper, 1998). Many factors are known to influence the likelihood that a sample member agrees to a survey request. We can imagine that the probability of a sample member co-operating depends on the prominence of each of those factors and how important each of them is to the sample member (Groves et al, 2000). But the nature of the factor itself can also differ between sample members. For example, the same interview may be more burdensome to one person than another, due to differences in cognitive ability, or simply due to differences in circumstances that render some - perhaps complicated - questions applicable to one person but not to the other. A number of the factors that have been shown to influence response propensity might be expected to differ systematically

between older and younger people. These relate to burden and the related issues of safety concerns, topic-related difficulty and topic-related interest.

The concept of the burden imposed by taking part in a survey interview encompasses a number of aspects. It is broadly conceptualized by Bradburn (1978) as “the product of an interaction between the nature of the task and the way in which it is perceived by the respondent”. Relevant dimensions include the amount of the respondent’s time that is required to take part, the amount of effort required to take part and the levels of stress, anxiety or embarrassment caused by taking part. For any given survey interview, the number of questions applicable may vary between sample subgroups. In the case of the *Understanding Society* interview, we anticipate that fewer questions, on average, may be applicable to older respondents. However, it is likely that there are also systematic differences between older and younger respondents in cognitive ability, hearing and vision. These are likely to result in longer average question administration times for older respondents, so the total time required for participation could be longer for older respondents. But, as Bradburn (1978) states, it is the interaction between this required time and the way this is perceived by the respondent that matters. It is possible that older respondents value their time less and value the company of a visitor more, on average, than younger respondents, so a greater time commitment would not necessarily translate to a greater burden. However, the likely differences in cognitive ability, hearing and vision mentioned above might not only increase the administration time but might also increase the difficulty of taking part, making the experience less pleasant for older respondents and increasing the chance that they would not want to take part again (Ziniel 2008).

It is plausible that older respondents may find the *Understanding Society* interview less salient and interesting than younger people, as many of the topics are of limited relevance to people who are retired, not working, and no longer have dependent children. Though many sections of the questionnaire are heavily filtered - so respondents are not asked detailed questions that are not relevant to their circumstances - on some topics there are still several filter questions to be asked of all respondents. For example, several questions about current employment are asked of all respondents, including those who are fully retired. These include whether they have done any paid work in the last week and, if not, whether they had a job that they were away from; whether they have looked for any paid work in the past four weeks; whether they would like to have a regular job; whether they currently earn any money from a second job or odd jobs; and (if the respondent is aged

under 70) whether they have actively looked for jobs in the UK in the last 12 months. Such questions may give the respondent a clear indication that the survey is particularly interested in employment, which in turn may give the impression to retired respondents that the survey is not particularly relevant to them. This might produce an increased reluctance to take part, though this could be expected to manifest itself only after the first wave interview, as only then would the sample members have a clear idea of the interview content.

There is no obvious reason why the nature of the survey questions should induce systematic differences between respondent age groups in the levels of stress and anxiety experienced, but a more general reason for different levels of anxiety may be related to perceived safety. Older people are well aware of the dangers of letting strangers into their homes, and are constantly reminded of it through the media, publicity campaigns and messaging of various sorts. They may therefore, regardless of the nature of the survey request, be more cautious about allowing a survey interviewer to enter their home.

Our starting point is therefore a belief that a number of factors that influence survey response propensity are likely to differ, on average, between older sample members and their younger counterparts. Most of these (time commitment, difficulty of the response task, interest in the survey topic, safety concerns) are likely to act in the direction of suppressing response amongst older people, but at least one (perception of the costs and benefits of the time commitment) may act in the opposite direction.

2. Estimating Age Effects on Response Propensity

Obtaining good estimates of age-specific survey response rates is not straightforward, except in situations where the sampling frame provides an accurate indication of the age of each selected person. For surveys of the general population, such sampling frames only exist in countries where it is possible to sample from a population register. The UK, like many countries, does not have a population register. Instead, general population surveys typically use address-based sampling. In this approach, the unit initially selected from the sample frame is a residential address and the sample frame provides no information about the age, or indeed any other characteristics, of the residents of the address. Thus, while the ages of respondents may be known once the survey data has been collected, the ages

of non-respondents are not known, so response rates cannot be calculated separately for different age groups. Instead, response rates can only be estimated by comparing the responding sample to estimates of the population distribution. However, surveys with multiple stages or multiple data collection instruments provide an opportunity to examine directly the association between age and response propensity to each stage other than the first, assuming that age is collected at the first stage.

Understanding Society, the UK Household Longitudinal Study, is a complex multi-stage survey that provides ample opportunity to study differences in participation rates between age groups. The first stage consists of enumeration of a large random sample of households in the UK. During the course of this enumeration, the age of each resident of each household in the sample is recorded. Following this enumeration, at wave 1 of the survey each person aged 16 or over is asked to complete both an individual interview, administered face-to-face using computer-assisted personal interviewing (CAPI) and a paper self-completion questionnaire. It is therefore possible to assess the relationship between age and response rate to each of these two instruments, conditional on being in a household that was successfully enumerated at wave 1 of the survey. Similarly, participation at each subsequent annual wave of the survey – each of which involves a household interview, an individual interview, and a self-completion questionnaire - can be analysed by the age of the respondent.

We present here evidence of the association between response propensity and age for each of the first four main stages of participation in the study, namely enumeration, individual interview and self-completion questionnaire at wave 1, plus re-enumeration at wave 2.

As mentioned above, the age of individual non-respondents to the initial enumeration is unknown. However, the *Understanding Society* general population sample was designed to be representative of the total UK resident population. Therefore, the sample should have a similar age distribution to the population. Any differences are likely to have been caused by differences in participation propensity. Table 1 compares the age distribution of the enumerated sample with that of the total UK population. We see that people aged 70 or over appear to be slightly under-represented in the enumerated sample, constituting only 12.3% of the sample, but 14.0% of the population. It seems likely, then, that this age group has a lower initial participation propensity than others.

Table 1: Comparison of UKHLS wave 1 enumerated sample with population estimates

	Population	Enumerated sample	Interviewed sample
Age	%	%	%
16-19	6.3	7.1	5.8
20-29	17.0	16.0	14.3
30-39	16.2	16.7	17.0
40-49	18.3	18.7	18.9
50-59	15.0	15.6	15.9
60-69	13.2	13.6	14.7
70+	14.0	12.3	13.4
<i>n</i>		50,199	41,047

Notes: Analysis is restricted to the general population sample; percentages are unweighted; population percentages are averages of the 2009 and 2010 ONS mid-year population estimates.

To assess the effect of age on response to the wave 1 individual interview we control for household size. This is important, as a person in a household containing only one person aged 16 or over is very likely to complete the individual interview since it must have been that same person who co-operated with the enumeration¹. And older people, particularly those in the 70+ group, are more likely than others to live alone. We fit logistic regression models in which the number of adults in the household is included as a covariate. We fit two models of this kind. The first is based on all eligible persons aged 16 or over; the second is restricted to eligible persons in households containing at least two persons aged 16 or over. The results are summarised in Table 2. As our focus is on older respondents, we designate the 70+ age group as the reference category. The results are very similar for the two models, so we comment only on model 1 and the remainder of the analysis in this section retains the complete sample of persons aged 16 or over.

We find that the odds of responding for those aged 70 years old or older are lower than those for the 60-69 age group and are not significantly different from those for the 40-49 and 50-59 age groups. We therefore conclude that, conditional upon household response and controlling for household size, sample members aged 70+ are no more likely than

¹ In fact, 98.9% of such people completed the wave 1 individual interview, compared to 83.5% of people in households containing two persons aged 16 or over, and 68.8% of people in households containing three or more persons aged 16 or over.

those aged 40-59, and less likely than those aged 60-69, to complete the individual interview. However, all of these age groups have higher conditional response propensities to the individual interview than sample members aged under 40 and, particularly, those under 30. In consequence (Table 1, final column) the relative representation of older people in the sample responding to the individual interview is better than that in the enumerated sample.

After completing the individual interview, the next task for Understanding Society sample members is to complete a paper self-completion questionnaire. We can see (Table 3) that, conditional on household size, respondents in the 70+ age group were significantly less likely than those in the 40-49, 50-59 and 60-69 age groups to complete the self-completion questionnaire. There is a suggestion that they may also have been less likely to respond than the 30-39 age group, though the difference is of borderline significance ($p=0.07$). Only 20-29 year-olds are less likely to respond to the self-completion questionnaire than those in the 70+ age group. It seems quite likely that the cognitive and visual burden of the self-completion questionnaire are contributory factors to the relatively low response propensity of sample members aged 70 and over.

Table 2: Response to UKHLS Individual interview by age, wave 1

	Model 1			Model 2		
	Odds Ratio	Standard Error	p	Odds Ratio	Standard Error	p
Age						
16-19	0.691	0.046	<0.0005	0.694	0.047	<0.0005
20-29	0.614	0.036	<0.0005	0.611	0.037	<0.0005
30-39	0.855	0.052	0.010	0.846	0.053	0.007
40-49	1.047	0.064	0.449	1.034	0.064	0.588
50-59	1.043	0.065	0.502	1.034	0.066	0.598
60-69	1.210	0.082	0.005	1.200	0.082	0.008

Notes: Model 1 is based on all persons aged 16 or over in enumerated households, $n=50,199$; model 2 is restricted to persons aged 16 or over in households that contained at least two persons aged 16 or over, $n=41,740$. Analysis is restricted to the general population sample. Baseline category is age 70 or over. Number of adults in the household is included as a categorical variable in both models as a control: in model 1 it has five categories (1, 2, 3, 4, 5 or more) and in model 2 it has four categories (2, 3, 4, 5 or more).

Table 3: Response to UKHLS self-completion questionnaire by age, wave 1

	Descriptive statistics			Logistic regression		
	Completed	Did not complete	Base	Odds Ratio	Standard Error	<i>p</i>
Total	87.4	12.6	41,047			
Age						
16-19	89.7	10.3	2,377	0.959	0.047	0.342
20-29	87.0	13.0	5,864	0.876	0.034	0.001
30-39	86.8	13.2	6,979	1.073	0.042	0.074
40-49	87.8	12.2	7,768	1.258	0.049	<0.0005
50-59	88.5	11.5	6,513	1.312	0.053	<0.0005
60-69	89.3	10.7	6,044	1.497	0.064	<0.0005
70+	83.4	16.6	5,502			

Notes: Base is all general population sample respondents to the wave 1 individual interview, i.e. all those who were eligible for the wave 1 self-completion questionnaire. Baseline category in the logistic regression is age 70 or over. Number of adults in the household is included as a categorical control variable.

It could be hypothesized that any effects on response propensity of the interview experience (for example, the burden or sensitivity of answering the questions) is likely to take effect only, or particularly, after the interview. Only then will the respondent know how the experience of taking part felt and whether they would be willing to experience it again. Therefore, we should expect to see consequent response differentials only from wave 2 onwards. In Table 4, we compare respondent age groups in terms of the propensity to give an individual interview at wave 2 conditional on having given an individual interview at wave 1. The oldest age group has a relatively high wave 2 response rate (79.3%, compared to the overall rate of 75.4%). However, this disguises the fact that they have the highest refusal rate of all age groups (16.1%, compared to 13.4% overall). This relatively high propensity to refuse is compensated by very low propensities to be not contacted (2.9%, compared to 6.0% overall) or not located (1.0%, compared to 3.5% overall).

Table 4: Interview outcome at UKHLS wave 2 conditional on interview at wave 1, by age

	Full interview	Proxy interview	Household non-contact	Household refusal	Unable to locate	Base
Total	75.37	1.85	5.97	13.35	3.46	21,967
Age group						
Age 16-19	64.1	6.2	9.0	15.2	5.5	1,315
Age 20-29	64.3	2.2	10.9	12.9	9.8	3,112
Age 30-39	75.0	2.2	6.7	11.6	4.5	3,820
Age 40-49	75.7	1.6	6.0	14.1	2.5	4,141
Age 50-59	80.1	1.3	4.8	12.5	1.3	3,503
Age 60-69	82.1	1.2	3.2	12.6	1.0	3,210
Age 70+	79.3	0.8	2.9	16.1	1.0	2,866

Notes: Base is all persons who carried out a full individual interview at wave 1 in the year 1 general population sample (only the first year of wave 2 data is available at the time of analysis).

3. Interview Length

One reason posited in section 1 above for possible differential response propensity by older sample members is reduced relevance of the survey. In a survey with a heavily filtered questionnaire, respondents to whom fewer sets of questions apply can expect a shorter interview, other things being equal. *Understanding Society* includes, for example, questions about current employment (asked only of people currently employed), questions about current education (asked only of people currently in education), questions about childcare (asked only of people with dependent young children) and so on. There are no modules of questions that are asked exclusively of older, or retired, people, though some questions are particularly relevant to older respondents (for example, about health problems or state benefit receipt). One might therefore perceive that older respondents could experience shorter interviews than others, on average.

On the other hand, it is also posited that, on average, older respondents are likely to have lower levels of cognitive ability and poorer hearing and vision. These factors are likely to slow the interview down. One could therefore expect interviews to last longer for older respondents.

To disentangle these two effects, we need to be able to decompose interview duration into the number of items administered and the mean time taken to administer each item.

Fortunately, the *Understanding Society* data allow us to do this as the time taken to answer each item is recorded automatically on the data set. Table 5 shows that the mean interview length in minutes is about 9% longer than average for the 70+ age group (36.4 minutes, compared to an average of 33.5 minutes), while the mean number of items asked is 2% fewer than average (175.7, compared to a mean of 179.1 items). Thus, the mean time taken per item administered is about 11% longer than average amongst respondents aged 70 or over (12.43 seconds, compared to a mean of 11.22). This is consistent with the notion that differences in cognitive function, hearing and vision may slow down interviews for older respondents (though there are of course also other possible explanations for this difference in interview speed). Comparison of the mean number of items asked provides only weak evidence that the interview is less relevant for older people, though the number of items asked taps only one dimension of relevance.

Table 5: Individual interview length and speed, by age, wave 1

	General Population Sample			
	Mean interview length (mins)	Mean items asked	Mean items per minute	Base
Total	33.5	179.1	6.01	41,448
Age				
16-19	23.3	138.4	6.90	2,554
20-29	29.8	169.5	6.41	6,080
30-39	34.6	192.3	6.16	6,995
40-49	35.5	191.0	5.97	7,876
50-59	33.8	179.0	5.86	6,524
60-69	34.7	178.5	5.72	5,981
70+	36.4	175.7	5.48	5,438

Notes: Base is all respondents to the wave 1 individual interview, aside from 2,311 (4.5%) for whom timings data was missing.

4. The Effect of Incentives

One survey design feature used to encourage participation is the administration of respondent incentives. We draw here on experimental evidence to examine whether incentives act differentially on older respondents. On the *Understanding Society* Innovation Panel (Uhrig 2011) sample members were randomly allocated to different incentive

treatments. Three different treatments were used in the experiment, in all cases involving the use of High Street Gift Vouchers, a cash-equivalent voucher that can be spent in any one of several high street stores. The first two treatments involved enclosing an unconditional incentive of either a £5 or £10 voucher with the advance letter sent to each sample member soon before field work began. The third treatment involved enclosing a £5 voucher but with a promise, explained in the advance letter, that it would be raised to £10 for each sample member in the household if all sample members in the household completed the individual interview. In other words, the third treatment was effectively an unconditional £5 plus a further £5 conditional on complete household response. From wave 2 onwards we can evaluate any interaction between incentive treatment and age, as age was collected at wave 1 for all sample members in co-operating households.

Table 6 shows the outcome at wave 2 by incentive treatment, overall and for age groups. In this analysis we have combined all sample members aged 60 or over into a single age group, as the sample sizes in two of the incentive treatment groups are too small to allow separate analysis of those aged 70 or over. There is no statistically significant effect of incentive treatment on response rate overall, or for either the 16-39 or 40-59 age groups. But amongst those aged 60 or over, there is a significant effect, with the £10 unconditional incentive producing a response rate fully ten percentage points higher than the £5 incentives.

5. The Effect of a Mixed Mode Approach

Another design feature that can affect response rates is survey mode. At wave 2 of the Innovation Panel, sample members were randomly allocated either to a standard face-to-face protocol or to one of two mixed mode protocols, in which telephone interviewing was prioritised and face-to-face interviewing used only where a telephone interview could not be obtained. At wave 2, the mixed mode protocols achieved lower response rates overall than the face-to-face protocol (Lynn et al 2010). At wave 3, which was carried out entirely face-to-face, the relative response rate recovered slightly for the group that had been assigned to mixed modes at wave 2, but a significant difference remained (Lynn 2011). We examine here whether those findings are replicated amongst older respondents.

At wave 2 we find a significantly higher response rate with the face-to-face protocol for both the youngest and oldest age groups, but at wave 3 we find that the remaining significant difference in response rates between the groups assigned to different protocols at wave 2 is entirely driven by the 60+ age group (Table 7). No significant effect of wave 2 assignment remains for either of the younger age groups.

Table 6: Conditional Response to IP2, by age and incentive treatment

Age group	Incentive treatment			<i>p</i>
	£5	£10	£5-£10	
Total	67.5% (1,702)	70.3% (438)	70.0% (413)	0.40
Age 16-39	62.7% (585)	56.7% (134)	64.9% (151)	0.32
Age 40-59	70.6% (618)	73.0% (159)	75.0% (140)	0.53
Age 60+	69.3% (499)	80.0% (145)	70.5% (122)	0.04

Notes: Cells show the percentage of IP wave 1 respondents who responded also at wave 2 and, in parentheses, the number of wave 1 respondents. *p* is the *p*-value from a χ^2 -test of difference between the response rates for the three treatments for the specified age group.

6. Summary and Discussion

We have shown that sample members aged 70 or over appear no less likely than their younger counterparts to take part in the initial interview, but are significantly less likely to subsequently complete the self-completion questionnaire. Conditional on responding at wave 1, respondents aged 70 or over have the highest refusal rates at wave 2 (but the lowest non-location and non-contact rates). We also find that the participation of sample members aged 60 is more sensitive than that of others to the effect of respondent incentives and to the effect of a telephone/face-to-face mixed mode approach rather than a purely face-to-face approach.

Table 7: Response to IP2 and IP3, by age and mode treatment at IP2

Age group	Wave 2			Wave 3		
	Face-to-face	Mixed mode	<i>p</i>	Face-to-face	Mixed mode	<i>p</i>
Total	74.4% (846)	65.9% (1,694)	0.000	64.5% (846)	59.5% (1,693)	0.01
Age 16-39	70.6% (292)	58.9% (569)	0.001	55.5% (292)	52.8% (568)	0.46
Age 40-59	74.2% (295)	70.9% (618)	0.29	65.8% (295)	63.4% (618)	0.49
Age 60+	78.8% (259)	67.9% (507)	0.002	73.4% (259)	62.1% (507)	0.002

Notes: Cells show the percentage of IP wave 1 respondents who responded also at wave 2 or wave 3 respectively and, in parentheses, the number of wave 1 respondents (minus any known to have died prior to the wave in question). *p* is the *p*-value from a χ^2 -test of difference between the response rates for the three treatments for the specified age group

These findings suggest that the factors at play in determining survey participation may be somewhat distinct in the case of older respondents. Declining cognitive function, motor skills, hearing and vision may have particular implications for the choice of survey mode. Self-completion questionnaires may be relatively difficult and burdensome for older respondents. Telephone interviews too, may be more problematic than face-to-face interviews. The finding that the effect of initial mode of approach at one wave persisted at the following wave for older sample members, but not for their younger counterparts, is striking. The reasons are not clear, however. Perhaps older respondents felt a greater sense of unease or intrusion of privacy at having been approached by telephone. The findings regarding respondent incentives are also striking. The use of higher value respondent incentives to encourage response may be particularly effective for older sample members, whereas lower value incentives may be equally effective for younger respondents.

Survey researchers should be aware that the barriers to taking part in surveys, and the motivations for doing so, may be somewhat different for older people. Survey strategies to encourage participation may benefit from taking this into account, for example through the use of age-specific procedures and incentives.

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