

Trust, Concerns and Attitudes: Examples for Respondent (Non-)Cooperation in SHARE

Imke Herold¹  · Michael Bergmann¹  · Arne Bethmann¹ 

¹MEA-SHARE and SHARE Berlin Institute, SHARE Germany

Item non-response, especially for income questions, and respondents' reluctance to consent to record linkage are common problems in survey methodology. Both have potentially serious implications for data quality, leading to less precise or biased estimates and thus potentially hampering substantive analyses. While the Survey of Health, Ageing and Retirement in Europe (SHARE) attempts to mitigate these problems, e.g. through income imputation, it seems particularly important to understand the underlying issues that keep respondents from reporting their income or consenting to record linkage. We therefore included an additional paper-and-pencil drop-off questionnaire in the German sub-study for Wave 8, focusing on issues such as trust in surveys and organisations, data privacy concerns and attitudes towards income questions. Broadly consistent with previous research, we find that trust in scientific institutions and positive attitudes towards surveys tend to reduce income non-response and linkage non-consent, while concerns about data confidentiality in surveys are positively associated with non-response and non-consent. In addition, our results suggest that concerns when talking about income increase the likelihood of not reporting household income, and finding it exhausting to answer many questions increases the likelihood of agreeing to record linkage. This provides further insights into the underlying reasons why people aged 50 and over in Europe do or do not consent to data linkage and provide a substantive income response.

Keywords: survey trust; income non-response; linkage consent; survey enjoyment; survey value; survey burden

1 Introduction

Social science surveys rely on the willingness of respondents to provide information in order to collect reliable research data. Unfortunately, many surveys are faced with a significant number of respondents who are reluctant to do so, leading to non-response at the unit or item level or, for example, refusal to consent to linkage with administrative records. These problems have potentially serious implications for data quality, leading to less precise or biased estimates and thus hampering substantive analyses (e.g. Frick and Grabka, 2005; Riphahn and Serfling, 2005). Solutions to mitigate these problems after the fact, such as income imputation, can only reduce potential bias to a limited extent and are not even an option in the case of linkage non-consent. It is therefore important to understand the reasons for respondents' refusal to provide information

in order to address these potential problems and increase motivation to participate.

As part of the German sub-study of SHARE, the Survey of Health, Ageing, and Retirement in Europe, we developed a paper-and-pencil questionnaire that was administered during survey Wave 8 (2019/2020) to collect information on potential reasons for refusing to provide information. This covered three areas, which are also commonly discussed in the literature: Firstly, respondents' trust, for example, in the institution conducting the study; secondly concerns they may have about disclosing private information; and third, attitudes towards surveys, in particular whether they enjoy taking part, whether they see surveys as valuable, or whether they perceive participation as a burden. In addition to the more general research perspective that we take in this paper, we have tailored the questionnaire to provide insights into our specific SHARE population and ideally, to help us develop approaches that we can use to increase respondent motivation in future waves.

SHARE has a strong focus on socio-economic data, so for this paper we will focus on income non-response, one of

Corresponding author: Imke Herold, SHARE Germany, MEA-SHARE and SHARE Berlin Institute, Berlin, Germany (Email: iherold@share-berlin.eu)

the most common problem variables in this respect, as well as on non-consent to link survey data to the German pension records. We argue that the mechanisms behind these two examples are similar, as they concern a similar domain of information, namely private finances. At the same time, the amount of data disclosed is very different, which may change the rationale for cooperation. Therefore, this paper aims to provide insights into the reasons why respondents are reluctant to provide certain types of information in a survey by addressing the following research questions:

- How do trust in the survey institute, privacy concerns, and survey attitudes affect income non-response?
- How do trust in the survey institute, privacy concerns, and survey attitudes affect linkage non-consent?
- How do these factors differ between income non-response and linkage non-consent?

In the next section, we take a closer look at the current literature and provide more concrete theoretical arguments as to why and how we expect these factors to influence motivation to provide information. We then describe the data collected in our study and how we operationalise the variables of interest. The analysis section then provides an initial bivariate overview before presenting multivariate models that control for additional factors. We conclude with a discussion of the results, addressing our main questions and assessing whether and how we might use these findings to help with respondent cooperation in future SHARE waves.

2 State of Research and Theoretical Background

Item non-response has received a great deal of attention in the survey methodology literature. In general, three groups of factors are distinguished that influence the process of (not) answering a question (see e.g. Beatty and Herrmann, 1995, 2002; de Leeuw et al., 2003; Tourangeau et al., 2000; Stocké, 2006; Loosveldt, Pickery and Billiet, 2002; Yan and Curtin, 2010):

1. Cognitive factors, such as the effort required to answer the question and the accessibility of the information requested;
2. Sensitivity of the question or topic, which may lead to socially desirable responses or privacy concerns;
3. Motivational or attitudinal factors, usually understood as the general interest in or attitude towards surveys.

In particular, income questions in surveys seem to be frequently left unanswered (e.g. Yan and Curtin, 2010). This may be because these types of questions are considered sensitive and may be perceived by respondents as an invasion of their privacy or as “none of the researcher’s business” (Tourangeau and Yan, 2007: 860). It has also been argued

that these questions can be threatening or challenging for respondents (Loosveldt et al., 2002), who may have difficulty understanding the underlying concepts or terms in financial questions, or simply have difficulty retrieving the relevant information to answer the questions correctly (Moore et al., 2000).

Research on obtaining informed consent to link with administrative data and increasing consent rates addresses different aspects of the consent process. One strand of research focuses on the presentation and design of the consent question within the questionnaire. That is, which part of the questionnaire the consent question is placed in, as well as the wording and framing of the consent question (Kreuter et al., 2016; Sakshaug et al., 2013). Other aspects that may be relevant to respondents’ willingness to consent to record linkage are the type of consent (verbal/written) and the mode of the survey. However, the type of consent required is usually defined by law, in the case of Europe by the EU General Data Protection Regulation (GDPR), and researchers are therefore limited in their options. The survey mode may indeed influence respondents’ willingness to consent to record linkage. As shown by Jäckle et al. (2022), consent rates are higher when the interview is conducted face-to-face than when it is conducted online. Other research on consent has focused on correlates of consent at both the respondent and interviewer level, leading to inconsistent results (e.g. Huang et al., 2007; Korbmacher and Schröder, 2013; Sakshaug and Kreuter, 2012).

Another line of research uses experimental methods to explore respondents’ motivation or reluctance to consent to linkage. In qualitative interviews, Jäckle et al. (2022) identified several factors that influence the decision to consent. These factors include unconscious aspects (such as personality traits), social aspects (such as norms and attitudes towards data sharing) and environmental aspects (such as trust in the institutions involved or beliefs about data security). They show that trust reduces concerns about data linkage and leads to higher consent rates. In an experimental study, Burton et al. (2021) examine the process of consent decision-making. They find that trust is the “single most important decision process” and that older respondents, particularly those over 60, are more likely to base their decision on trust. Overall, more reflective decision processes were associated with higher consent rates than less reflective processes.

There are different concepts used to measure trust or privacy concerns and how they influence the decision to give consent. If respondents are not directly asked about privacy concerns, interviewer observations from the previous wave can be used as indicators (Sakshaug et al., 2012). Trust is often interpreted as ‘trust in other people’ or ‘risk aversion’ (Al Baghal et al., 2014; Peycheva et al., 2021; Warnke et al., 2017). Another indirect indicator of trust is

the willingness to answer sensitive questions. In particular, it has been shown that respondents who refuse to answer income questions are less likely to agree to record linkage (Jenkins et al., 2006; Korbmacher and Schröder, 2013; Sakshaug et al., 2012; Warnke et al., 2017). This supports the hypothesis that income questions and consent questions should both be considered sensitive questions and thus have similar underlying response processes. One of the research questions we aim to investigate in this paper is the extent to which this is true. More specifically, we argue that trust in the survey institute should be associated with lower levels of non-cooperation, whereas concerns about data privacy and confidentiality should lead to greater reluctance to provide information for both income and linkage consent.

The scientific debate on survey attitudes has led to a number of studies on and development of survey scales (e.g. Rogelberg et al., 2001; Loosveldt and Storms, 2008). Recently, de Leeuw et al. (2019) integrated several previous works into an international survey attitude scale that measures three common dimensions related to survey (non-) participation:

- Survey enjoyment, i.e. respondents' enjoyment of the act of participating in a survey
- Survey value, i.e. respondents' perception that surveys are beneficial e.g. to society
- Survey burden, i.e. respondents' perception that taking part in a survey is a burden

The items used in the SHARE questionnaire operationalise similar dimensions (see Appendix in de Leeuw et al., 2019), although they are not identical as our questionnaire was developed independently and at an earlier stage.

The argument here is that if respondents have positive attitudes towards surveys, e.g. enjoy taking part or see value in surveys, they are likely to be more willing to cooperate, which in turn would reduce non-response and non-consent. Conversely, if respondents report that they perceive surveys as a burden, we would expect them to be less cooperative and have higher levels of non-response and non-consent. In the next section we look in more detail at the specific items from the SHARE questionnaire that we use for our analysis of the impact of trust, concerns and survey attitudes on non-response and non-consent.

3 Data and Methods

In our analyses, we used data from the German SHARE Wave 8 drop-off questionnaire and from the regular SHARE Wave 8 (SHARE-ERIC, 2024), both of which were suspended in March 2020 due to the outbreak of COVID-19. The regular SHARE is a longitudinal survey conducted

every two years via face-to-face interviews with individuals aged 50 and over and their partners living in the same household (see Börsch-Supan et al., 2013 for more information). We use data from the regular SHARE interview for information on respondents' background characteristics and on our dependent variables "income non-response" and "linkage non-consent". Only respondents from the Wave 8 refreshment sample in Germany were invited to participate in the paper-and-pencil drop-off, which was conducted between January and March (2020).

The SHARE drop-off is a voluntary, self-administered paper-and-pencil questionnaire that includes country-specific questions in addition to the SHARE interview.¹ After the regular face-to-face interview, the interviewer writes the respondent's first name and ID on the cover page of the questionnaire to ensure that the respondent's answers are correctly matched in both surveys. The interviewer then hands the drop-off questionnaire to the respondent, who can either complete it directly (in the presence of the interviewer) or leave it with the respondent. In the latter case, the respondent should return the completed questionnaire in a prepaid envelope to the national survey agency as soon as possible, where it will be digitalised and sent via secure data transfer to SHARE's central coordination.

SHARE is based on full probability samples (Bergmann et al., 2019, 2021, 2022) that provide representative data for the population aged 50 and over. The preliminary individual response rate, based on eligible respondents who participated for the first time in the regular SHARE Wave 8 when fieldwork had to be interrupted, was 11.4 percent. However, this low response rate needs to be put into perspective as only a small proportion of the sample had been contacted at this point and thus had the chance to participate before fieldwork was suspended due to the Covid-19 outbreak. In the drop-off, a response rate of 77.4 percent was achieved based on complete and valid, i.e. properly matched, interviews. To avoid selectivity, our analyses are based on 748 respondents aged 50 and over who participated in both the regular face-to-face interview and the additional self-administered drop-off.

In addition, since 2009, the German SHARE data have been linked to selected administrative data from the German Pension Insurance (Börsch-Supan et al., 2018). The linked SHARE-RV dataset is available to researchers through a separate request. Due to the GDPR, informed written consent is required for record linkage. For SHARE, the consent question for record linkage is placed in the middle of the regular face-to-face questionnaire. Respondents are asked to sign a consent form for record linkage, which is sent directly

¹ The German SHARE Wave 8 drop-off questionnaire can be found on the SHARE website: https://share-eric.eu/fileadmin/user_upload/Questionnaires/Q-Wave_8/w8_de_dropoff_ques.pdf

to the German Pension Insurance. In addition to personal information (full name, date of birth, etc.), respondents are asked to provide their social security number (SSN) on this consent form. While the availability of the SSN is a necessary condition for linking a case to the SHARE-RV dataset, in our analyses we only consider whether consent was given regardless of the availability of the SSN (SHARE-ERIC, 2022).

3.1 Measures

Our main dependent variables were asked in the regular face-to-face interview. With regard to *income non-response*, respondents were asked the following question:

- “How much was the overall income, after taxes and contributions, that your entire household had in an average month last year?”

If the respondent was unable or refused to give an exact amount, it was possible to select an income range (unfolding bracket sequence; see Heeringa, Hill, and Howell, 1993; Juster and Smith, 1997). For the analyses, we first distinguished exact numerical income responses from “don’t know” and refusals. This allows for a straightforward interpretation of the results in the logistic model, which predicts the probability of giving an immediate numerical response in terms of available household income. As a robustness check, we then collapsed the numeric income responses and successively provided income range responses in brackets, leaving only persistent don’t knows and refusals as income non-responses.

Moreover, respondents were asked to *consent to the linking of their interview responses with administrative data*:

- “Do you consent to the linkage with data of the [German Pension Insurance] as described in the form?”

The form included information on the linkage procedure, data handling and the voluntary nature of participation. In addition, interviewers were carefully trained to answer respondents’ questions and help them complete the consent form. For the analyses, we constructed a dichotomous indicator to measure non-consent by counting all received and valid consent forms² and comparing them to the total number of respondents.

To examine factors associated with non-response to household income and non-consent to the record linkage request in SHARE, we used several variables from the German drop-off questionnaire that explicitly address *respondents’ trust and concerns*, namely

- “How much do you trust or distrust [Scientific institutes which conduct survey research, like the Max Planck Society] to keep the information they collect from you confidential?”,
- “How concerned are you about your personal privacy in general?”, and
- “How concerned are you that someone would find out your name and address, along with the answers you gave in an interview like ‘50+ in Europe’?”.

We also used a question that was worded to capture concerns about a possible cultural custom that might influence the provision of a substantive answer, particularly for the household income question, but also for the link to income-related administrative data:

- “It is a sign of bad manners to talk about one’s income.”

For survey attitudes, we used questions along the three dimensions of survey value, survey enjoyment and survey burden, similar to those used by de Leeuw et al. (2019):

- “Surveys are important for society”,
- “I really enjoyed to participate in the ‘50+ in Europe’ interview”, and
- “It is exhausting to answer many questions in a survey interview”.

Finally, we used a related question about the specific content of SHARE that might reflect the respondent’s motivation and thus influence the provision of income and/or consent:

- “The questions in the ‘50+ in Europe’ interview did get me thinking about things”.

The multivariate analyses control for a range of socio-demographic and economic characteristics, mainly to control for biases in sample composition, but they may also be of interest in their own right to provide some additional clues to better understand the mechanisms underlying income non-response and linkage non-consent, respectively.

We used the *age of the respondent* at the time of the regular SHARE face-to-face interview to create three age groups (50-64 years, 65-79 years, 80 years and over) and the *gender of the respondent* (0: male, 1: female). The International Standard Classification of Education 1997 (ISCED-97) was used to take into account the *level of education* attained. Respondents were divided into two categories: primary and secondary education (ISCED-97 score: 0-3) and post-secondary education (ISCED-97 score: 4-6). We control for these variables as they are known to be associated with survey participation and response behaviour.

We also used information on whether *respondents live alone* or were *born abroad or not*, as well as the *type of area in which they live* (0: rural area, 1: urban area like a

² Consent forms are considered valid if they are signed by the respondent and if they can be linked to a completed SHARE interview.

large town or city) as we expect that respondents' living situation may influence their attitudes towards and behaviour in surveys. For example, people living alone or those with a migrant background may be less willing to provide (sensitive) information. Similarly, we expect respondents living in more urban areas, where anonymity is greater, to be more cooperative. In addition, we measured *respondents' economic status* by asking whether they were able to make ends meet easily or not, as we expect differences in the provision of information about their financial situation in particular.

factors as controls in multivariate logistic regression models to analyse the effect of trust in the survey institute, privacy concerns, and survey attitudes on income non-response and linkage non-consent. All independent variables were standardised to the overall sample mean, and we use average marginal effects (AME) to facilitate comparison of the indicators. Analyses were conducted using Stata 17, based on robust standard errors and using sample-specific calibration weights generated using the weighting scripts available on the SHARE-ERIC website (de Luca and Rossetti, 2019).

3.2 Statistical Analyses

To address the research questions outlined in the introduction, we first look descriptively at the distribution of income non-response and linkage non-consent, as well as our measures of survey attitudes and data privacy concerns. We then include the aforementioned socio-demographic and economic

4 Analyses

4.1 Descriptive Statistics

Table 1 provides an overview of the items used in our models, which were measured as 5-point Likert scales, ranging from totally agree/very concerned to totally disagree/not

Table 1

Descriptive statistics for respondents' trust, concerns and survey attitudes regarding household income non-response and linkage non-consent

	<i>n</i>	Mean %	No agreement/ Low concerns %	Agreement/ High concerns %	Diff %
Panel A: % Household income non-response					
Trust in scientific institutes to keep data safe	715	81.3	16.9	12.1	-4.9
Concerns about data privacy in general	726	48.6	14.3	11.2	-3.1
Concerns about data leak in SHARE	721	25.7	12.2	14.6	2.3
Concerns when talking about income	722	41.1	8.0	19.0	11.0**
Surveys are important for society	714	77.1	17.5	11.8	-5.8
Questions in SHARE made me reflect	722	35.0	14.7	9.1	-5.6
I really enjoyed to participate in SHARE	723	69.5	14.2	12.0	-2.2
It is exhausting to answer many questions in a survey	710	26.1	14.1	9.2	-4.9
<i>Overall</i>	736	12.9			
Panel B: % Linkage non-consent					
Trust in scientific institutes to keep data safe	715	81.3	53.7	32.9	-20.8***
Concerns about data privacy in general	726	48.6	32.6	41.2	8.6*
Concerns about data leak in SHARE	721	25.7	32.3	50.1	17.8**
Concerns when talking about income	722	41.1	34.0	40.4	6.4
Surveys are important for society	714	77.1	48.8	33.0	-15.8**
Questions in SHARE made me reflect	722	35.0	41.2	27.4	-13.8**
I really enjoyed to participate in SHARE	723	69.5	43.8	33.5	-10.3*
It is exhausting to answer many questions in a survey	710	26.1	38.1	33.2	-4.9
<i>Overall</i>	737	37.8			

Data: SHARE Wave 8 Drop-off, Release 9.0.0 for Germany

*, $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$, (based on bivariate regressions using calibrated weights)

at all concerned. For intuitive understanding, we have dichotomised the variables measuring trust, concerns and survey attitudes in this section by coding the two lowest categories as “Agreement/High concerns” and the other three categories as “No agreement/Low concerns”. The mean can therefore be interpreted as the proportion of respondents who agreed (strongly) or had (high) concerns about data confidentiality.

Panel A provides information on non-response for household income and shows a prevalence of 12.9 percent among all drop-off respondents. Here the percentages of “No agreement/Low concerns” vs. “Agreement/High concerns” are closer together, resulting in less significant differences than in Panel B, which shows the descriptive statistics for linkage non-consent. However, the differences are largely in line with our expectations, i.e. we find lower levels of income non-response (leading to a negative difference) for trust or positive attitudes towards surveys and generally higher levels of non-response (leading to a positive difference) for concerns or negative attitudes. When there is a high level of concern regarding “talking about income”, the percentage of household income non-response is significantly higher. We follow up these impressions with more detailed analyses in the multivariate models.

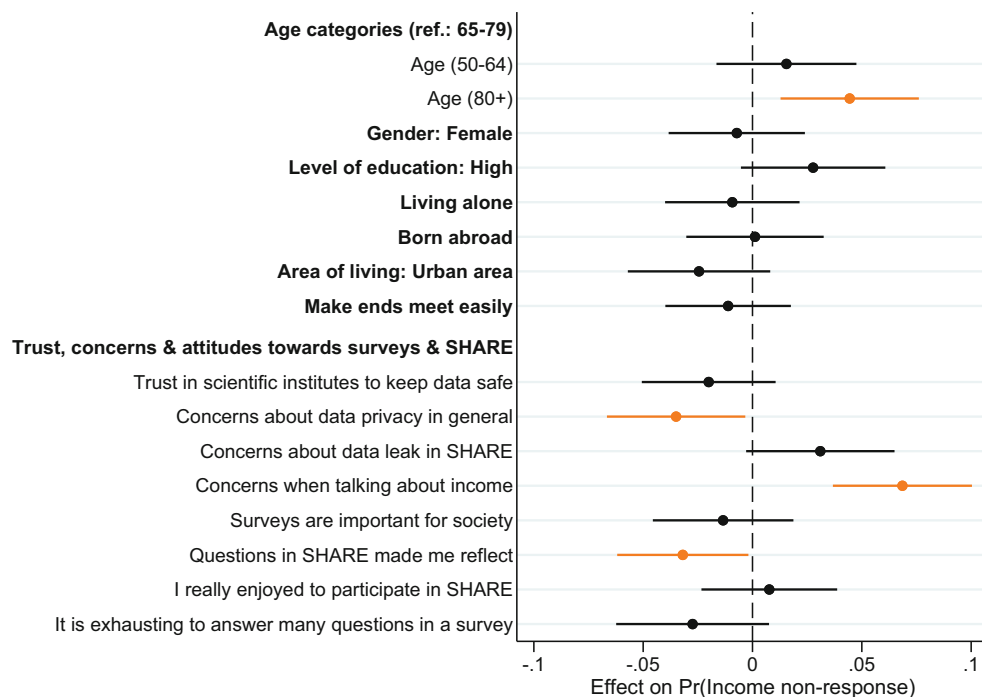
Panel B shows the descriptive statistics for linkage non-consent, which amounts to 37.8 percent of all respondents

who participated in the SHARE drop-off questionnaire in Germany. It can be seen that trust and attitudes related to the value and enjoyment of the survey are negatively correlated with linkage non-consent (negative difference), while concerns about data privacy and security (both in general and specific to SHARE) are positively correlated. In addition, reflecting about the questions in SHARE leads to less non-consent. With two exceptions, all differences are significant at least at the 95 percent level.

4.2 Income Non-Response

Figure 1 shows the average marginal effects (AME) of the weighted multivariate model with income non-response as dependent variable. For this model the adjusted pseudo- R^2 is 0.15.

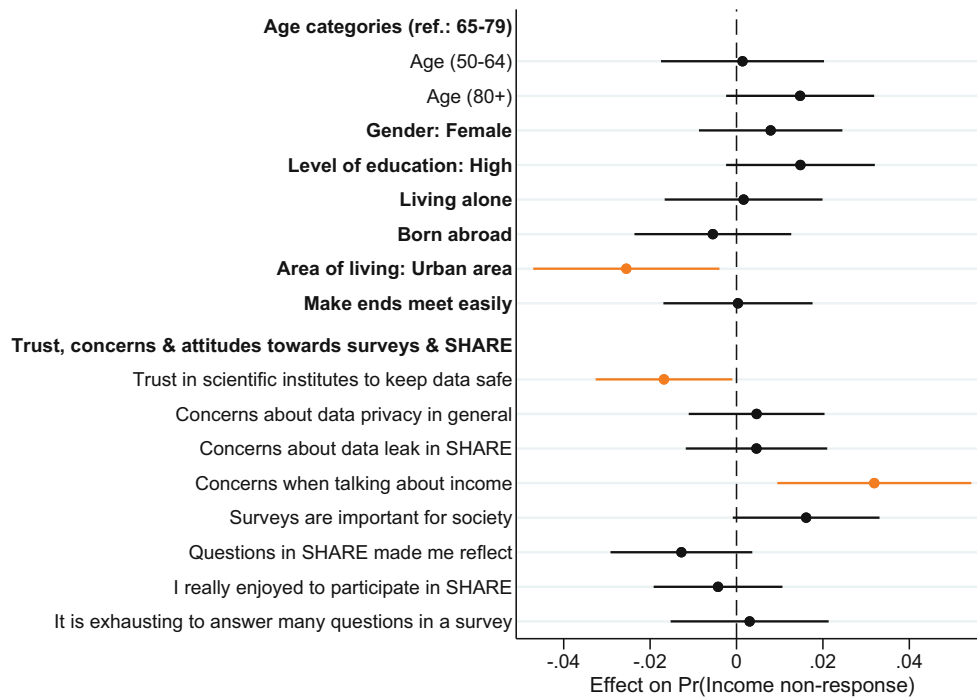
In terms of trust, concerns and survey attitudes, the results do not give a clear picture. Contrary to our expectation, there is a significant negative association between data privacy concerns in general and income non-response. This seems odd to us because it means that – while controlling for all other variables in the model – respondents who express general data privacy concerns are actually less likely to refuse the income question. Conversely, as we expected, concerns about discussing income significantly



Data: SHARE Wave 8 Drop-off, Release 9-0-0 for Germany (n=647; weighted) with 95%-confidence intervals.

Fig. 1

Logistic regression model on income non-response



Data: SHARE Wave 8 Drop-off, Release 9-0-0 for Germany (n=647; weighted) with 95%-confidence intervals.

Fig. 2

Robustness check for logistic regression model on income non-response

increase the likelihood of income non-response. Reporting that the questions in SHARE made respondents reflect is negatively associated with income non-response. With regard to the control variables used, older respondents are indeed significantly more likely to not report their income than younger respondents. Other covariates did not reach a level of statistical significance, i.e. in this analysis we found no evidence of an effect of the other indicators, such as trust in the survey institute, concerns about data leakage in SHARE or the items measuring survey attitudes.

Considering bracket responses to the income question as a milder form of refusal or a less accurate form of cooperation may change the reasons for refusal or cooperation (see Fig. 2). As a robustness check, we adjusted the dependent variable of income non-response. The new variable operationalises the collapsed income brackets answers with the numerical responses from the household income question versus the remaining refusals and don't knows.

As this operationalisation reduces the proportion of income non-response from 12.9 to 5.0 percent, we see some differences in the results. For the items on trust, concerns and survey attitudes, we now find a significant negative effect for the item "trust in scientific institutes to keep data safe", which is in line with our expectations that this kind of trust would increase respondents' willingness to cooperate. We also don't see a significant negative effect for concerns

about data privacy in general, as we did in the original model. The effect of the item "concerns when talking about income" remains significantly positive as in the original model, underlining its effect in reducing the likelihood of cooperation.

The results for the statement "questions in SHARE made me reflect" change slightly and we don't find a significant effect anymore. The effects of the survey attitudes items remain insignificant.

With regard to the control variables used, we no longer see a significant positive effect for people aged 80 and over. This may indicate that the option of reporting one's income as a bracket answer is a more acceptable option for older respondents. Instead, we find a significant negative effect for respondents living in urban areas, which can be interpreted as greater anonymity in more urbanised areas leading to less income non-response. Overall, the changes in the results show that the option of providing an income range in brackets seems to be a more privacy-compliant response option.

4.3 Linkage Non-Consent

The results for the consent model (with non-consent as the dependent variable) paint a slightly different picture (see Fig. 3). For this model, the adjusted pseudo- R^2 is 0.10.

For the trust item, we find a significant negative association with linkage non-consent, i.e. respondents who express that they trust the scientific institute to keep their data safe are less likely to refuse to consent. This is in line with our expectations and is similar to what we found in the income non-response model which included bracket answers as a valid answer, rather than a refusal. “Concerns about data privacy in general” don’t seem to have an effect one way or the other. However, “concerns about data leakage in SHARE”, significantly increase the likelihood of non-consent. This is different from the income non-response model, where this item was not significant. One reason for this may be that data leakage is a greater threat in the context of the linked administrative data, which contain considerably more sensitive information than a single income question. “Concerns when talking about income” are not significantly associated with linkage non-consent.

As for the survey attitudes items, we see that the statement “surveys are important for society” has no significant association with linkage non-consent. Similar to the original income non-response model, respondents who state

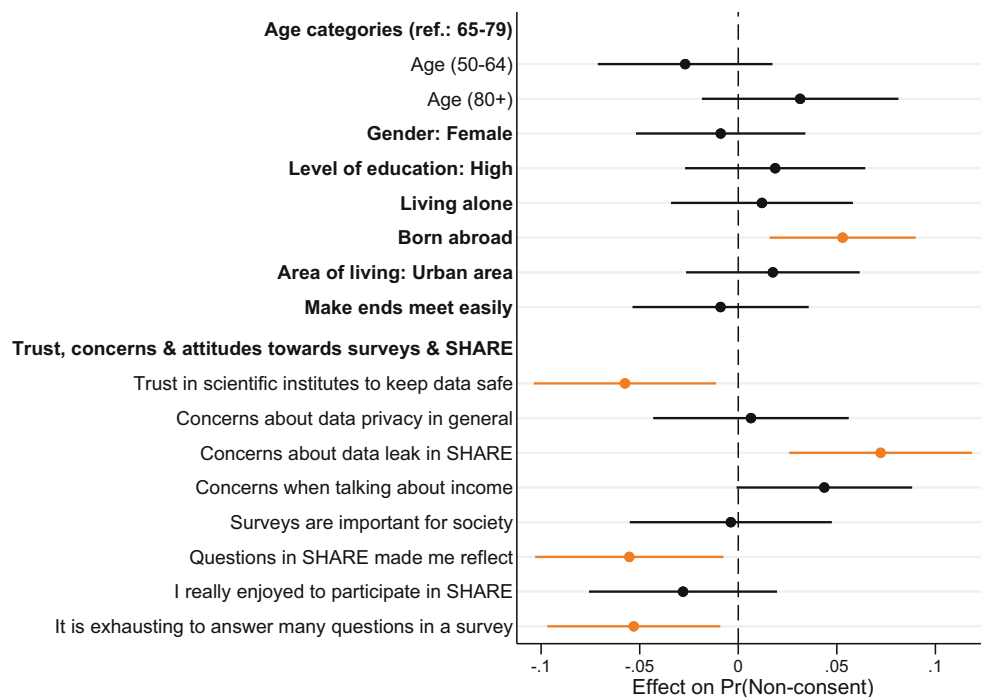
“questions in SHARE made me reflect” are significantly less likely to refuse to consent, pointing at an increase in respondents’ motivation to cooperate. Enjoyment of participating in SHARE has no significant effect on linkage non-consent, though. Furthermore, the result for the statement “it is exhausting to answer many questions in a survey”, is significantly negatively associated with linkage non-consent, i.e. respondents who feel burdened by the survey are more likely to allow their administrative data to be linked.

Among the control variables we see that only respondents born abroad are significantly more likely to refuse to consent. None of the other control variables show a significant association with linkage non-consent.

5 Conclusion

Non-response to sensitive questions such as income or consent to record linkage is a common challenge for surveys. In this paper, we investigated how respondents’ trust, concerns and attitudes towards surveys influence their response behaviour with respect to income non-response and linkage non-consent in the context of the German SHARE sub-study.

With regard to income non-response, we used two different operationalisations of the dependent variable. First, we



Data: SHARE Wave 8 Drop-off, Release 9-0-0 for Germany (n=646; weighted) with 95% confidence intervals.

Fig. 3

Logistic regression model on linkage non-consent

operationalised a dichotomous variable based on the household income question, distinguishing between reported numerical income and refusal/don't know. The second operationalisation takes into account given bracket answers and collapses those with the numerical responses from the household income question. The results of both analyses show that concerns when talking about income is a driving factor behind income non-response. As the trust item only shows a significant effect in the second analysis, we conclude that trust in data safety plays a role in providing information about one's income, but that providing bracket answers is considered a less sensitive form of information.

In the analysis of non-consent, we see that trust in data safety is the most important factor in the decision to (not) consent to record linkage. In addition, items with a specific reference to SHARE, i.e. concerns about data leakage in SHARE and stating that the questions in SHARE made them reflect, seem to influence response behaviour. This may indicate that respondents do not have a general response pattern for sensitive questions, but carefully consider what information to share depending on the specific study or institution. Furthermore, the significant negative effect of reflecting on SHARE questions can be interpreted in a way that asking questions may change the (response) behaviour of respondents (see, e.g., Bergmann and Barth, 2018; Bach et al., 2021). This aspect should be taken into account in future studies and can indeed be analysed with SHARE panel data. Another interesting result is the significant negative effect of the statement that it is exhausting to answer many questions in a survey. This suggests that respondents hope for a shorter questionnaire by linking survey data with administrative data, although we do not suggest this in the wording of the linkage consent question.

In addition, although not statistically significant in all models, there appears to be a tendency for trust and positive attitudes towards surveys to be negatively associated with income non-response and non-consent to linkage, while concerns and negative attitudes towards surveys mitigate non-cooperation. This is broadly consistent with previous research (e.g. de Leeuw et al., 2019) and provides further insight into the underlying reasons for consenting to data linkage and giving a substantive income response by people aged 50 years and over.

Income non-response and linkage non-consent, as our two examples of non-cooperation in surveys, have some similarities, but also clear differences. Trust in the scientific institute and reflecting on the SHARE questions have an effect on response behaviour for both questions, suggesting that these are important factors for non-cooperation on sensitive questions. Differences can be seen for items that are more related to the specific topic, i.e. concerns when talking about income for income non-response and finding it exhausting to answer many questions for linkage non-

consent. This shows that there are specific reasons for answering or not answering certain questions.

Against this background, our study has some limitations, but we also see some concrete next steps for further research. First, it is clear that the specific age group of our sample (respondents aged 50+) must be carefully considered when drawing generalised conclusions based on our results. Second, due to the pandemic-related cessation of fieldwork in early 2020, our data so far only include cases collected up to that point. Using the drop-off cases from the SHARE Wave 9 refreshment sample continuation in 2021/2022 will allow replication of our findings and provide an opportunity to compare the survey climate before and after the onset of the pandemic. Additional information on panel drop-out in subsequent waves will also allow us to examine more closely the impact of income item non-response on attrition, and to answer the question of whether and under what conditions income item non-response in one wave is predictive of unit non-response in a subsequent wave.

Despite these limitations, our study contributes to the existing literature by providing new information on the relationship between different components of trust in surveys and non-cooperation regarding income questions and consent to linkage. In this sense, our study can be seen as a first step in exploring older people's reasons for providing or withholding additional information, and thus may help to improve the value of social surveys.

More specifically, knowing that trust in survey institutes and concerns about data leakage affect survey cooperation highlights the importance of good communication. Although we already aim to address these issues through the careful development of our SHARE survey materials, our findings suggest that a reassessment may be a valuable step towards greater respondent cooperation. In-depth testing (e.g. using Qualitative Pretest Interviews, see Buschle et al., 2022) could be one way to see if and how our invitation letter, privacy statement and linkage consent form, are having the desired effect of building trust and reducing concerns, and how we might improve them. A second step might be to re-evaluate our interviewer training to give them better tools to communicate the privacy policies in place, but also to better equip them to address concerns when talking about income, and perhaps even to encourage respondents to reflect on the survey questions.

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Data Availability The SHARE release data used in this paper (see Acknowledgements) are available from <https://share-eric.eu/data/data-access>. In addition, we used internal release data for the linkage consent question (SHARE-ERIC et al., 2022). Access to these data would need to be specifically requested from SHARE-ERIC.

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