Financial Literacy and Interviewer Effects

Thomas F. Crossley
University of Essex

Tobias Schmidt *
Deutsche Bundesbank

Panagiota Tzamourani
Deutsche Bundesbank

Joachim K. Winter
University of Munich

Abstract: In this paper we ask whether interviewer characteristics influence the answers to a standard set of financial literacy questions. Interviewers are particularly relevant as a potential source of response bias in the case of financial literacy as they know the answers to these questions and thus can help respondents out. We use data from Germany's wealth survey "The Panel on Household Finance (PHF)" to investigate this issue. Controlling for the usual respondent characteristics, we find that interviewer fixed effects explain a substantial fraction of the variance of the financial literacy score and interviewers' age, gender and education have statistically significant effects on it. Despite the large interviewer effects, they don't seem to affect the estimated coefficients on financial literacy in substantive equations too much.

Keywords: financial literacy, interviewer effects, measurement error

Corresponding author: Deutsche Bundesbank, Research Centre, Wilhelm-Epstein-Str. 14, 60431 Frankfurt am Main, Germany. Phone: +49 69 9566 3730. E-Mail: tobias.schmidt@bundesbank.de

Extended Abstract

Insufficient savings and bad financial decision-making are major concerns in the face of increasingly complex financial markets and increasing reliance on individual financial provision for old age. While these concerns have been raised for decades (see, inter alia, Engen, Gale and Scholz, 1996; Skinner, 2007), recent research has highlighted the limitations of households' decision processes. One explanation for inadequate financial decisions that has attracted considerable interest is a lack of financial literacy (Lusardi and Mitchell, 2014). This emergent literature argues that poor financial literacy is both causally responsible for suboptimal financial choices of households and individuals and amenable to being altered by public policy.

Much of the current knowledge on the predictors and effects of financial literacy is based on survey data. Lusardi and Mitchell (2008) proposed a short list of questions on interest rate compounding, on the effects of inflation, and on diversification of securities that can be integrated into existing surveys at low cost. The premise is that individuals should know the answers to these questions in order to make sound decisions on household finance. Indeed, a variety of studies have shown that measures of financial literacy based on the responses to such simple survey questions are correlated with the quality of households' financial decisions and also with long-term financial outcomes, even after controlling for socio-economic characteristics and for cognitive ability. This holds for teenagers who are just beginning to make their own financial decisions as well as for young and older adults, and across both developed and developing countries.[1]

Despite the recent advances in the analysis of financial literacy, measurement error arising from the survey response process is an important concern, as with many other survey-based measures used in the analysis of household consumption and household finance (Browning et al., 2014). Lusardi and Mitchell (2014) summarize studies that use instrumental variables (IV) techniques to address measurement error in regressions where financial literacy is a right-hand side variable. They observe that IV estimates of the effects of financial literacy in these studies are typically larger than OLS estimates, and conclude that "the non-instrumented estimates of financial literacy may underestimate the true effect" (p. 27). While econometric methods such as IV can resolve endogeneity that arises from measurement error, they are not ideal for several reasons, perhaps the most important of which is the fact that credible instruments are often hard to come by. In this paper, we follow an alternative route: We explore how the survey response process induces measurement error in the answers to financial literacy questions. Specifically, we focus on the role of the survey interviewer.

A large literature in survey methodology has shown that interviewers are an important source of measurement error. For example, interviewers might help respondents to better comprehend complex survey questions or they might help respondents to find strategies that enhance the reporting of quantities that are not easily recalled.[2] Interviewers are particularly relevant as a potential source of response bias in the case of financial literacy as they know the answers to these

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[1] The existing evidence is reviewed by Lusardi and Mitchell (2014); additional more recent studies include Lührmann et al. (2014).

[2] The survey methodology literature [reference] argues that interviewers might affect survey responses in three different ways: unit nonresponse, item nonresponse, and the response itself. In this paper, we focus on the two latter channels.

questions and thus can help respondents out.[3] It is therefore not only substantively important but also very interesting from a survey methodology perspective to study the effects interviewers have on measures of financial literacy. Our analysis will address the following questions:

1. Are responses to financial literacy questions affected by the interviewer?
2. Is there heterogeneity in interviewer effects, both with respect to the socio-economic characteristics of the respondent and with respect to interviewer characteristics, including those that can be controlled by survey field agencies such as interviewer experience?
3. Which are appropriate strategies to reduce / correct for interviewer effects in regression models that include financial literacy as a right-hand side variable?

We analyze data on financial literacy collected as part of a large survey on household finance which is representative for the German population. The survey data allow us to identify the interviewers. Moreover, we obtained a number of background variables, including gender, age and education level of interviewers as well as their contact behavior and workload during the field phase from the survey firm that conducted the fieldwork.

Our data come from the German wealth survey, the Panel on Household Finance (PHF), a representative survey of private households in Germany. The first wave of this household panel study was conducted in 2010/11. The questionnaire focuses on household's financial and non-financial assets and debts. The core questionnaire program is supplemented with, among other, questions about financial literacy. It includes the standard question on interest rate compounding, the effect of inflation and diversification of securities developed by Lusardi and Mitchell (2008). We aggregate the answers to these three questions into a "financial literacy score", a binary variable which is one if the respondent gets all questions right and is zero if at least one answer is wrong or missing (DK/NA). Figure 1 below shows that almost 68% of respondents provide correct answers to all three literacy questions. About 10% have missing values for at least one question.[4]

Figure 1 Number of correctly answered financial literacy questions
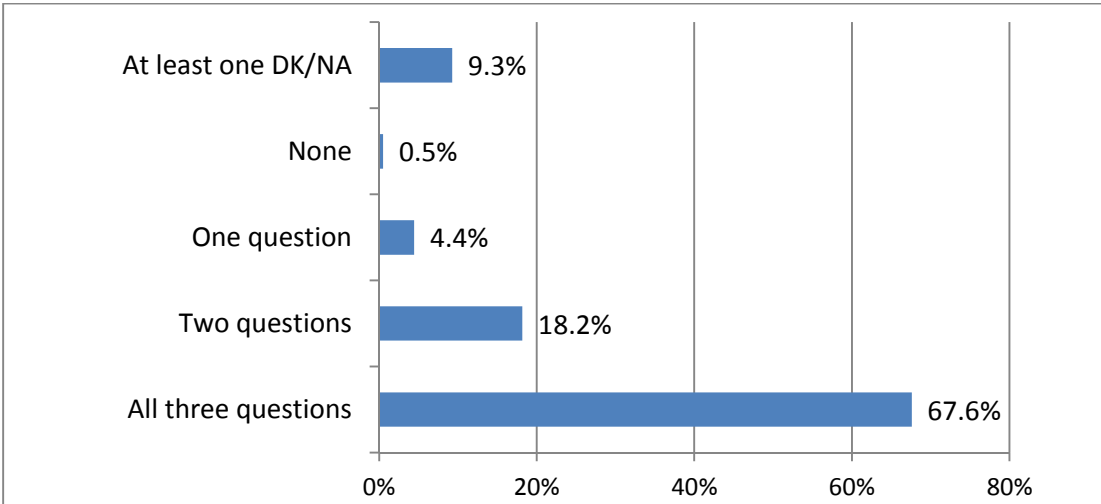
Source: PHF 2010/2011

We estimate several different (unweighted) ordinary least squares regressions to estimate the impact of interviewer characteristics and interviewer fixed effects on the financial literacy score. We take a "two-stage" approach and first regress the literacy score on interviewer fixed effects (and individual/household characteristics) and then regress the resulting interviewer fixed effects on interviewer characteristics. With regards to the first stage, we document that interviewer effects explain a very large fraction of variance in financial literacy questions, much more so than for other questions where interviewers do not know the answer (see Table 1), like inflation expectations or total household net income.

Table 1 - R2 from unweighted OLS regressions

	Financial literacy score	FL1 : interest	FL2: Inflation	FL3: Diversification	Life Satisfaction	Total household net income	Inflation expect.
(a) Interviewer FE only	31.3%	42.2%	24.0%	21.6%	15.0%	15.1%	16.3%
(b) Individual / HH characteristics	8.9%	5.4%	8.3%	5.4%	12.6%	21.3%	3.4%
(a) + (b)	36.2%	44.6%	29.0%	25.2%	23.7%	30.7%	18.6%

Source: PHF 2010/2011

Notes: (b) Individual/HH Characteristics included: RP: born in Europe (dummy), RP: female (dummy), RP: Age (<35, 35-44, 45-54, 54-64, 65+), RP: Employment (1 gainfully employed, 2 self-employed, 3 other), RP: Education (1-low, 2-medium, 3-high), HH: gross household income (quartiles), HH-Size (1, 2, 3, 4+)

The results for the second stage indicate that interviewers' age and education have statistically significant effects on the financial literacy score. The literacy scores are higher for persons interviewed by interviewers aged 65 and older, with a high education level. Also interviewers with less item non-response (on the whole survey) and longer interviews tend to produce higher literacy scores.

In order to gauge how these measurement issues affect substantive regressions, we estimate equations with the financial literacy score as an independent variable and savings account mutual fund and stock ownership as dependent variables, respectively. To correct for the identified interviewer effects we including interviewer fixed effects as additional explanatory variables. We find only minor differences in the estimated coefficients for the literacy score in equations with and without interviewer fixed effects (see Table 2).

Table 2 - Coefficients on Financial Literacy

	FL only	FL + int. fixed effects	FL + indiv./ hh characteristics	FL + indiv./ hh characteristics + int. fixed effects
has saving accounts	0.167 ***	0.174 ***	0.102 ***	0.112 ***
has mutual funds	0.187 ***	0.170 ***	0.132 ***	0.115 ***
has stocks	0.107 ***	0.108 ***	0.065 ***	0.062 ***

Source: PHF 2010/2011

Notes: Weighted OLS Regression: Dependent Variable: Dummies for different assets, Independent Variables (different models): Financial Literacy score (missing=wrong)

We further examine whether the effects we observe might be due to interviewers affecting the response mechanism. Excluding respondents with missing values on the literacy questions does not change our results substantially. Interviewer effects remain very important and age, education and length of interview still explain the variation in interviewer effects. The only difference to the results reported above is that the variable for item non-response in the whole survey is no longer significant. We also show that the interviewer fixed effects are not merely picking up regional effects.

In conclusion, our main finding is that interviewer effects explain a very large fraction of variance in financial literacy questions (much more so than comparator questions where interviewer does not know the answer). Despite the large interviewer effects, they don't seem to affect the estimated coefficients on financial literacy in substantive equations too much.

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