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Financial literacy and subjective expectations questions: A validation exercise

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ABSTRACT

I use subjective expectations data on future asset returns from the Italian Survey of Household Income and Wealth to validate widely used financial literacy questions. I argue that financial literacy and the willingness to answer these expectations questions are conceptually related constructs. In fact, both build on financial knowledge and skills and on confidence to use that knowledge. From the estimation of simple probit models, I find evidence of positive correlation between responding expectations questions and answering correctly the questions used to appraise individual financial literacy. If these latter questions captured just numeracy or generic cognitive skills, the size and significance of their coefficients would go to zero when one controls for formal education. This is not the case, which suggests that they capture knowledge and skills that may indeed be at the basis of financial competence. Besides this, the likelihood of answering correctly these questions does not seem to depend on individual information on the state of the economy and finance. Furthermore, based on decomposition analysis, I find that the questions with the largest information content are those eliciting knowledge and skills which are at the basis of day-to-day financial decision making. Implications are finally drawn for the literature.

1. Introduction

In recent years there has been increasing interest in appraising individual financial literacy. This interest has been spurred by the recent crisis which has amplified the risks that people face when they lack the financial sophistication required to absorb financial shocks. Indeed, individual financial sophistication has received increasing attention throughout the past two decades as governments scaled down social security systems and concerns have grown about individuals' ability to provide for retirements through their own savings.

Although, as it happens in many research areas, financial literacy has been variably defined, some consensus exists that it consists in «the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being» (cfr. the Annual Report to the President by the President's Advisory Council on Financial Literacy (2008)). This notion encompasses *financial knowledge*, the *financial skills* that depend on that knowledge, and the *confidence* that is necessary to use that knowledge.

To measure financial literacy both self-report methods and performance tests have been employed. Early studies have typically relied on questions asking respondents to self-assess their financial understanding and ability to deal with financial matters. In contrast, more recent papers use questions assessing respondents' knowledge of financial terms and their ability to apply financial concepts to particular situations. These questions measure the understanding of interest compounding,

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the effect of inflation and the time value of money, the knowledge of specific classes of assets, of the concept of diversification and of the relationship between asset prices and interest rates.[2]

The literature has used the answers to these questions to identify the determinants of financial literacy, the consequences of financial sophistication for financial decisions and to measure the effectiveness of financial education.[3] An issue that has been to a large extent overlooked is whether these questions measure actual financial competence or simply ability and cognition. Many concepts, such as numeracy, share features with financial literacy. To the extent that financial literacy involves skills, these skills likely depend on the ability to work with numbers. Indeed, the correlation between available measures of economic literacy and educational attainment and cognitive ability indexes is high (Jappelli, 2010, and Delavande et al., 2008). Nevertheless, they are separate attributes and Gustman et al. (2012) show that people who are numerate do not necessarily have a better understanding of, for example, their pensions or Social Security. From the existing literature, it is not clear what kind of and how much extra information survey based financial literacy indicators provide over the educational attainment ones. Assessing individual true ability to understand finance as separate from general cognition has implications for public policy because it is crucial to identify its determinants and to design suitable policies to address deficiencies.

With this study, I intend to validate standard financial literacy measures using survey questions aimed at eliciting subjective expectations of future asset returns. Generally speaking, once the concept of financial literacy and its domain have been defined, its measurement can be validated by verifying its relationship to other conceptually related constructs. My argument lies on the observation that the willingness to answer expectations questions of future returns is conceptually related to financial literacy. Survey non-response to expectations questions is high: around 30% in the Survey of Economic Expectations, 20% in the Health and Retirement Survey (HRS), and 50% in the Italian Survey of Household Income and Wealth (SHIW). Non-response is typically attributed to lack of relevant knowledge, and possibly to troubles thinking probabilistically when questions ask for the probability of future returns (Manski, 2004; Dominitz and Manski, 2011). Leaving the issue of probabilistic reasoning aside for a moment – which, however, I address in the analysis – indeed, in order to form and declare expectations of future returns, one needs some *financial knowledge* and *skills* to put knowledge together. Then, the willingness to declare one's expectations depends on *self-perceived knowledge or confidence*.[4] Financial literacy builds also just on all these elements. Hence, I predict the willingness to answer subjective expectations questions using standard financial literacy measures plus a broad set of controls that include variables capturing cognitive abilities, and allow for any spurious correlation between financial literacy measures and the error.[5] If such measures captured just numeracy or generic cognitive skills, the size and significance of their coefficients would go to zero when one controls for formal education. This is not the case in this analysis, which suggests that widely used financial literacy questions capture knowledge and skills that may indeed be at the basis of financial competence.

Notice that in contrast to other validation attempts that rely on (aspects of) saving behavior, no issues of endogeneity or reverse causality arise here. There may be issues of unobserved common determinants, for which however I can control using saving and wealth items.

Besides this, the analysis is informative as to the relationship between financial literacy as captured by survey questions and individual information on the current state of the economy and finance. In principle, based on the definition given earlier, financial literacy should not depend on financial information and on being informed, and such information should not be necessary to answer basic financial literacy questions.[6] As an example, one does not need to know the current level of interest rates to answer questions on interest compounding. Nevertheless, as Bucher-Koenen et al. (2012) argue, informed agents may feel more confident and be more comfortable with answering financial literacy questions.[7] Based on this, one may object that among non-respondents

[2] Using a sample of Dutch households, van Rooij et al. (2011) find a positive correlation between objective indicators of financial literacy and self-reported financial sophistication. In contrast, using a sample of clients of a major Italian bank,Guiso and Jappelli (2009) find that objectively measured financial literacy is only weakly correlated to self-perceived sophistication.

[3] There exist a very large number of studies on these issues, including Lusardi and Mitchell (2007a), Calvet et al. (2009), Banks and Oldfield (2007), Lusardi and Tufano (2009), Christelis et al. (2010), Behrman et al. (2012) and many others. See Hastings et al. (2013) for a review.

[4] The process of answering subjective expectations questions of future asset returns can be framed within the characterization of Schwarz and Oyserman (2001) who study the answering process to survey questions involving subjective judgement. They identify five different steps: 1. Understanding; 2. Recalling; 3. Inferring; 4. Mapping; and 5. Editing. In the first step, the respondent has to understand and interpret the meaning of the question. The second step requires the respondent to recall relevant behavior and information. In the third step, the respondent has to make inferences about the answer based upon her understanding of the question and her recalling of relevant behavior and information. In the fourth step, respondents have to map their answer onto the response format, that is, the response alternatives given. If the respondent lacks knowledge and there is no possibility to express uncertainty, the respondent might choose not to respond at all. The fifth and last step of responding to a question is the editing stage. At this point, the respondent decides which information to give. The more sensitive the subject is to the respondent, the less likely she is to give an answer. This editing also depends on social norms and the willingness to admit ignorance and to make mistakes. See also Beatty and Hermann (2002) and Tourangeau et al. (2000) for a different characterization of the response process resulting however in similar determinants of item nonresponse.

[5] Financial literacy is explicitly included among the elements affecting the quality of responses to subjective expectations questions for stock returns by Gouret and Hollard (2011) who sketch a model of expectations formation to address the concerns of the critics of subjective expectations data.

[6] Other notions of financial literacy include Lusardi (2008a, 2008b) and Hilgert et al. (2003) who refer to the knowledge of basic financial concepts, and Lusardi and Tufano (2009) who consider debt literacy and define it as the ability to make simple decisions regarding debt contracts using, in particular, basic knowledge about interest compounding. None of these definitions encompasses information about the economy. In contrast, many authors explicitly refer to the importance of being both literate *and* informed. For instance, when it comes to make saving decisions, Lusardi (2008a) stresses the importance of both possessing adequate financial literacy *and* of being informed about the most important components of saving plans. Hilgert et al. (2003) explicitly distinguish between financial literacy and knowledge when they stress the importance of financially literate *and* informed consumers for the marketplace to be effective and efficient.

[7] Based on evidence from Dutch DNB Household Survey and from the German SAVE study, Bucher-Koenen et al. (2012) argue that individuals who feel knowledgeable are less inclined to answer "do not know" to financial literacy questions. Bruine de Bruin et al. (2007) and Parker et al. (2008) also find that confidence in knowledge predicts self-reported retirement planning and savings, as well as performance on a hypothetical investment task, independently of the effect of actual knowledge.