



Eliciting risk-preferences in socio-economic surveys: How do different measures perform?



Michela Coppola*

Munich Center for the Economics of Aging (MEA) at Max-Planck-Institute for Social Law and Social Policy, Amalinstr. 33, D-80799 Munich, Germany

ARTICLE INFO

Article history:

Received 17 April 2013

Received in revised form 4 August 2013

Accepted 5 August 2013

JEL classification:

D12

D81

D91

Keywords:

Risk attitude

Measure validation

Survey questions

Item nonresponse

DOSPERS scale

Lottery tasks

ABSTRACT

This paper contributes to the debate on the adequate elicitation of individual risk attitudes in general socio-economic surveys. A multi-item question on the willingness to take risk, a very short form of the DOSPERS scale (Weber et al., 2002) and a series of lottery tasks are compared with respect to the quality of the answers and the predictive validity of the derived risk measures. The quality of the collected data appears to be high. All the measures are informative about individual's attitudes while item nonresponse is mostly unproblematic. The measures however differ in their predictive power, with the lottery-based measures exhibiting only weak predictive validity. When the scope of the assessment is to predict behaviour, domain specific risk measures seem to be more appropriate. Embedding a short DOSPERS scale in general surveys appears to be very promising for empirical applications in social sciences that use survey-based risk measures.

© 2013 Elsevier Inc. All rights reserved.

1. Introduction

Life is a risky business. Every day individuals are required to make decisions under risk and uncertainty. Orientations towards risk are therefore important determinants of individuals' choices and play a central role in both economic and psychological theories aimed at modelling and explaining human behaviour. However, individual willingness to bear risk is not straightforward to measure and a wide set of instruments has been developed in the past decades to elicit risk attitudes.¹ Two broad approaches can be distinguished (for a review: Weber and Johnson, 2008; Appelt et al., 2011). The first approach aims to infer preferences directly from actual choices made in real or hypothetical games or scenarios (e.g. Lejuez et al., 2002; Holt and Laury, 2002; Tanaka et al., 2010). The second approach aims to elicit risk attitudes by asking individuals about risky situations (e.g. Jackson et al., 1972; Weber et al., 2002) or personality traits directly related to risk aversion (e.g. Zuckerman et al., 1993). Despite the vast literature evaluating the performance of different instruments (e.g. Deck et al., 2009; Anderson and Mellor, 2009; Dave et al., 2010; Reynaud and Couture,

2012), there is actually no consensus on the most effective measure of risk preference, most probably because, as Weber and Johnson (2008) stress, there is no one right approach fitting every research purpose.

One aspect quite neglected in the literature so far is the question as to what extent various risk measures can be implemented in a broader survey. Risk attitudes elicited through games or lotteries, for example, often require to be run in a laboratory. Furthermore, the use of real monetary incentives to make sure respondents report their attitudes truthfully makes these methods quite expensive to implement on a large scale. On the other hand, measures based on self-report require individuals to answer a large amount of items; this makes it impossible to include them in surveys with a focus which goes beyond the pure elicitation of risk attitudes.² Up to date, general socio-economic surveys have been an essential tool for the analysis of many questions in the social sciences. It is thus very important to understand how different risk elicitation methods perform in a survey and to gauge the quality of the measures thus derived. Very few studies have tested the validity of different risk measures in representative surveys (Wärneryd, 1996; Donkers et al., 2001; Dohmen et al., 2011).

* Tel.: +49 89 38602 360; fax: +49 89 38602 390.

E-mail address: coppola@mea.mpsoc.mpg.de

¹ A catalogue of the most commonly used measures to assess risk attitudes is given at: <http://www.sjdm.org/dmidi/>.

² For example, the DOSPERS scale (Weber et al., 2002) is based on 30 items rated 2 times each (for a total of 60 questions).

The present work takes up the question about the elicitation of risk attitudes in general surveys, comparing three measures which differ in the degree of specificity used to define the risky situation, its stakes and occurrence probabilities. We use a general multi-item question on the willingness to take risks similar to [Dohmen et al. \(2011\)](#), where the typical risky situation, as well as the stakes and probabilities involved, are up to the individuals' imagination; a very short form of the DOSPERT scale developed in [Weber et al. \(2002\)](#), where the situations are given and only the stakes and the probabilities involved are left open for the individuals to imagine; finally, we use a series of lottery questions, where the respondents are confronted with specific tasks and clearly stated pay-offs and probabilities. While it is true that all these elicitation methods have already been tested and validated, it is for the first time that such measures have been collected simultaneously in a representative survey not specifically focussed on risk. In particular, it is the first time (to the author's knowledge) that an elicitation method as suggested by [Weber et al. \(2002\)](#) has been embedded in a general survey. The insights gained from this work will be useful for researchers using survey-based risk measures in their analyses. The results will also be relevant for researchers specifically interested in how to measure risk attitudes, shedding more light on the complex task of eliciting them in general surveys.

The analysis will cover several aspects. First, we will check the comparability of the survey results with previous findings and provide evidence of the reliability of the elicited risk measures (Section 2). Second, we will assess the quality of the measures looking at the patterns of item nonresponse (Section 3). The amount of missing answers is in fact used in the survey methodology literature as an indicator of data quality ([Groves, 1989](#); [Borgers and Hox, 2001](#); [de Leeuw et al., 2003](#)). To the author's knowledge, there is no other work which compares different risk measures drawing on the patterns of item nonresponse. Finally, we will analyze if, and to what extent, the various measures are able to predict actual risky behaviour (Section 4).

All elicited risk measures, including those based on instruments not developed to be administered in general surveys, appear to be reliable. Item nonresponse is mostly unproblematic, although weak evidence of selective patterns of item nonresponse to the lottery questions can be found. The measures, however, differ in their predictive power, with the lottery-based indicators exhibiting only weak predictive validity. Domain-specific risk measures seem thus to be more appropriate when the scope of the assessment is to predict behaviour. Altogether the results show that embedding a short DOSPERT scale in general surveys is very promising for empirical applications in social sciences that use survey-based risk measures.

2. Data and measures

The analysis in this paper is based on the study "Saving and Old-Age Provision in Germany" (SAVE), a representative longitudinal survey started in 2001 and focussed on households' financial decisions. Given the relevance of risk attitudes in shaping households' saving behaviour, their elicitation has received special attention since the very beginning of the study. Several measures have been collected in different waves, but they are simultaneously present only in the wave of 2005, which will be used in the following analysis.

SAVE's design is quite complex. The sample consists of several subsamples which differ in the mode used to conduct the interview.³ As the survey mode affects respondents in their answers (e.g. [Dillman and Christian, 2005](#)), we restrict the

analysis to the refreshment sample started in 2005, where a computer-assisted personal interview (CAPI) mode was used for all interviewees. A further advantage of using this subsample is the absence of attrition bias, as all respondents are first-time participants. The analysis is thus based on a sample of 1302 respondents randomly drawn from the German population. The following paragraphs describe in detail the risk measures analyzed in this paper and compare the answers given in the SAVE survey to previous results in the literature.

2.1. General assessment of risk attitudes in different domains

Using an 11-point scale, SAVE respondents are asked to express their level of agreement to the following set of statements: "I don't mind taking risks with respect to . . .", where the dots are to be substituted with 5 different domains (health, career, financial matters, sport/leisure time and driving). The answer choices range from 0 (strongly disagree) to 10 (strongly agree).⁴ Despite a different wording of the questions, this way of eliciting risk is very close to the one adopted in [Dohmen et al. \(2011\)](#).⁵ To answer the question, in fact, respondents have to figure out the typical risky situation, the related probabilities and stakes involved in taking risk in a given domain.

[Table 1](#) reports some descriptive statistics for each domain-specific question. SAVE respondents are quite risk-averse, the modal value being 0 for all domains and the mean (median) values being around 2 (1). However, the answers span the whole scale and, as shown in the central panel of [Table 1](#), a significant portion of respondents select answers at the top end of the scale. The bottom panel of [Table 1](#) summarizes the results reported in [Dohmen et al. \(2005\)](#) using data from the German Socioeconomic Panel (SOEP). The results are not directly comparable because of differences in phrasing the question.⁶ Nonetheless, the ranking of means in the willingness to take risks is very similar in both surveys: respondents are more willing to take risks in sport or with respect to their careers, and less willing to take risks in financial matters. This similarity is quite interesting given the different order in which the domains are presented in the two questionnaires.

2.2. Risk-taking and risk-perception items

Following the methodology of [Weber et al. \(2002\)](#), SAVE respondents are asked to assess their likelihood of engaging in risky activities relating to different domains (health, investment, gambling and recreation) and to rate their perception of the risk entailed in these activities. Unlike with the general assessments on the willingness to take risks, here the respondents are presented with well-defined situations, although judgement of the stakes and probabilities involved is left up to them.

The scenarios presented to the SAVE respondents is a short subset of those used by [Weber et al. \(2002\)](#). Only one item for each domain has been included in the questionnaire, chosen among those with the highest factor loadings in [Weber et al. \(2002\)](#). The wording of the questions has been slightly modified to generalize the scenario. The four situations (and the corresponding domains) are the following:

⁴ The complete questionnaire can be downloaded at: http://www.meapmpisoc.mpg.de/fileadmin/files/save/SAVE_questionnaire_2005.pdf.

⁵ The question (translated from German) used in [Dohmen et al. \(2011\)](#) is as follows: "How would you rate your willingness to take risks in the following areas?", where 0 means "risk-averse" and 10 means "fully prepared to take risks".

⁶ Rather than being neutrally formulated (as in the SOEP survey), the statement presented in SAVE is quite risk-prone, so that the answers are skewed to the right. Indeed while the median answer values in SAVE are between 1 and 2, in SOEP the median values are around 5.

³ See [Börsch-Supan et al. \(2009\)](#) for a detailed description of the dataset.

Download English Version:

<https://daneshyari.com/en/article/970581>

Download Persian Version:

<https://daneshyari.com/article/970581>

[Daneshyari.com](https://daneshyari.com)