



Validating an ultra-short survey measure of patience



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HIGHLIGHTS

- Incentive-compatible measurement of impatience is typically confined to small, non-representative samples.
- There exists no validated survey-based instrument for measuring patience.
- Survey measures can be used in large, representative samples.
- We validate a survey measure of patience using experimental methods.
- The survey measure is included in the SOEP and can be used for a wide array of applications.

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ABSTRACT

This study presents results of the validation of an ultra-short survey measure of patience included in the German Socio-Economic Panel (SOEP). Survey responses predict intertemporal choice behavior in incentive-compatible decisions in a representative sample of the German adult population.

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1. Introduction

Essentially all economic decisions involve a time dimension and thus a trade-off between payoffs or costs that accrue at

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different points in time. Patience (or the rate of time preference) is the central preference parameter that shapes such decisions over time. Accordingly, controlling for time preference (patience) is important in many economic applications.

So far, this has been prevented by the lack of a reliable measure of patience in large-scale representative surveys, since direct measures of patience are typically elicited in laboratory experiments among particular (student) subject pools only (see,

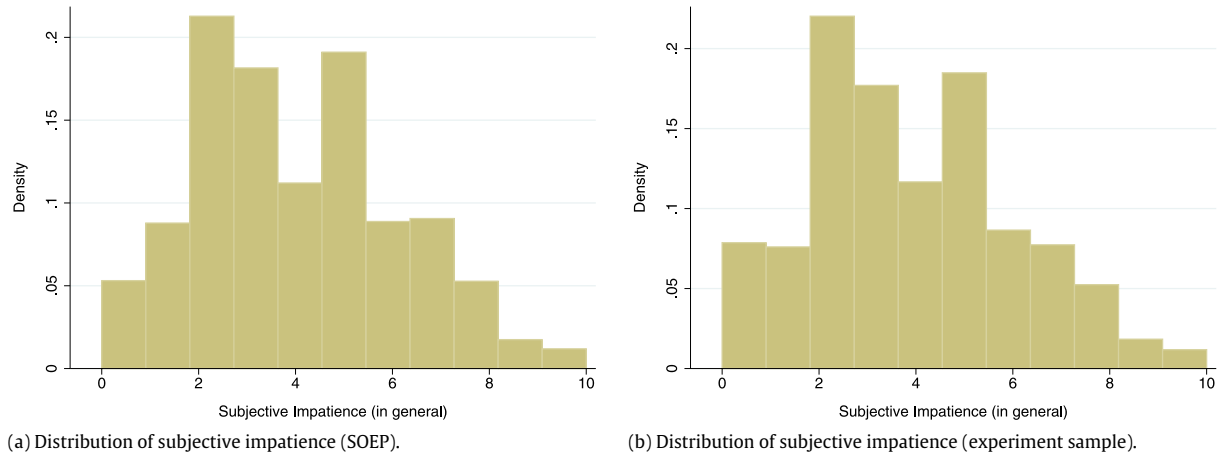


Fig. 1. Distribution of subjective impatience.

e.g., Frederick et al., 2002, for a survey).¹ Indirect measures of patience are sometimes constructed from consumption and savings patterns (see, e.g., Hausman, 1979; Gourinchas and Parker, 2002), but cannot remedy the non-existence of directly elicited measures of patience in large representative surveys. The obvious problem lies in the prohibitively high costs of conducting large scale experiments, which is why most experimental studies had to rely on comparably small samples that have been constructed specifically for the purpose of the experiment.

This note fills this gap by validating a survey measure of patience that has been included in a large and representative data set, the German Socio-Economic Panel Study (SOEP). The measure for patience is based on the responses to a question about “how patient in general” respondents are, expressed on a scale from 0 to 10. A representative sub-sample of respondents to this question has also participated in incentive-compatible intertemporal choice experiments. Relating the survey measure of patience to the experimental measure of patience allows for a validation along the lines of Dohmen et al. (2011) who relate a survey measure of risk attitudes in a survey (SOEP) to choices in a lottery experiment. The results show that the responses to the survey question predict behavior in the intertemporal choice experiment. With this validated measure of patience, the SOEP offers abundant research opportunities on a wide range of interesting topics involving intertemporal choices.

2. Data and measures

The analysis is based on a representative sub-sample of the German Socio-Economic Panel (SOEP). The SOEP is a representative household survey from the resident population of Germany over the age of 17. The SOEP has been used extensively in empirical research.²

Time preference experiments. The analysis is based on a representative sub-sample of respondents to the 2006-wave of the SOEP

¹ A few studies conducted experiments among other subject pools, including inhabitants of Vietnamese villages, see Tanaka et al. (2010) or children and adolescents, see Eckel et al. (2010) and Kocher et al. (2013). A notable exception is Harrison et al. (2002) and Andersen et al. (2008) who conduct time preference experiments with representative samples from Denmark.

² See, e.g., Dohmen et al. (2011) or Headey et al. (2010), as well as Wagner et al. (2007) and TNS-Infratest-Sozialforschung (2011) for a detailed description.

Table 1
Descriptive statistics of characteristics.

	SOEP			Field experiment		
	Mean (1)	Std. dev. (2)	N (3)	Mean (4)	Std. dev. (5)	N (6)
Fraction female	0.524	0.499	22,358	0.515	0.500	977
Age (in years)	48.59	17.45	22,358	52.64	17.56	977
Height (in cm)	171.33	9.33	22,296	170.76	9.29	974

Note: Columns (1)–(3) (SOEP) are based on the *w*-wave (2006).

who participated in incentivized experiments to elicit time preferences.³ Table 1 contains a comparison of the sample composition in terms of gender, age and height, of the 2006-wave of the SOEP and the participants in the experiment.

In the experiment, 977 participants were asked to indicate their preferences in a choice over a 12-month time horizon.⁴ The choice tables requested participants to indicate their preference between an immediate payment, or a delayed but larger payment to be received twelve months later. Participants faced this choice for 20 different sizes of the delayed payment. The immediate payment (depicted in the left column of the table) was a fixed amount of €200 (€1–\$US 1.30) in each choice situation, the respective delayed payment (in the right column) was increased by 2.5% points (compounded semi-annually) from row to row. Once a respondent had switched from the smaller, immediate payment to the larger, delayed payment, the interviewer verified that the respondent also preferred the later payment in all subsequent rows. From this switch, it is possible to infer the rate of return required to induce the individual to wait for the delayed payment.⁵ After the experiment, a random device determined the actual payoff relevant choice decision. This procedure, which was explained before the start of the experiment, ensured that all decisions in the elicitation of time preferences were incentive compatible (see also Holt and Laury, 2002), who have used a similar procedure

³ See Wagner et al. (2007) for detailed information on the sampling procedure and formalities of collecting the data. Out of a representative sample of 1548 individuals who were asked to participate in experimental treatments only 45 (2.9%) refused to participate. As a consequence, a severe item non-response bias is rather unlikely.

⁴ These decisions were the first choices in a series of experiments. This is important as the findings by Dohmen et al. (2012) indicate that intertemporal decisions in later choice tables over different time horizons are potentially affected by the time horizon of the first choice table. In addition, a time horizon of 12 months appears natural given that most interest rates are computed annually.

⁵ In fact it is only possible to infer bounds on the discount rate. Accordingly, the empirical analysis is based on interval regressions.

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