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On the advantages and disadvantages of subjective measures☆

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ABSTRACT

This paper utilizes data from a laboratory experiment in order to examine the advantages and disadvantages of subjective measures. Our results indicate good and bad news: subjective measures correlate highly with the variables they are designed to capture but they also systematically suffer from many economic and cognitive biases. Importantly, we find that subjective measures are often complements to objective measures, and that they may actually be preferable in use to objective measures in those cases where the two disagree with each another.

1. Introduction

Subjective measures are increasingly being used in empirical studies of many economic phenomena for which objective data is difficult to obtain.[2] When measuring corruption, happiness, racism, consumer satisfaction, or sexual behavior, for example, researchers resort to subjective data because the objective variables of interest are either actively being hidden by the parties involved, or are vaguely defined. Subjective measures are often derived from survey questions such as "How satisfied are you with your life?" or "How violent is your city?", which ask respondents to assess the variable of interest.

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[2] Kahneman and Krueger (2006), for example, note the increased use of perceptions in studies of life-satisfaction. They report that while only 5 studies using subjective measures were published between 1991 and 1995, more than 100 similar studies were published between 2001 and 2005. Others are also taking notice. Starting in 2005, the Gallup World Poll began maintaining a well-being index for 155 countries worldwide while in 2011, the United Kingdom decided to directly include some subjective well-being questions as part of their annual Integrated Household Survey.

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The use of these measures for empirical analysis, however, has been confronted with strong skepticism (as pointed out by Manski, 2004) and open calls for the use of purely objective measures instead (Olken, 2009; Banerjee et al., 2012). It is thus, important to ask whether such mistrust is warranted.

Three main arguments against the use of subjective measures can be found in the literature. First, subjective measures have been shown to suffer from many systematic biases related to order, scale and halo-effects (Podsakoff et al., 2003), psychological factors (Bertrand and Mullainathan, 2001; Redelmeier et al., 2003), macroeconomic fluctuations (Donchev and Ujhelyi, 2009), and others. Second, subjective measures have been shown to be uncorrelated (and even negatively correlated) with independent, objective measures related to the variable of interest (Olken, 2009; Razafindrakoto and Roubaud, 2010; Kaplan and Pathania, 2010; Hardoon et al., 2003). Third, subjective measures are difficult to aggregate and interpret because they are often expressed in ordinal scales (Rose-Ackerman, 1999).

In this paper, we evaluate the validity of these arguments and examine the performance of subjective measures relative to that of objective measures. In doing so, we distinguish between two types of subjective measures: *general* and *specific*. Specific subjective measures are derived from survey questions that ask about well-defined concepts that can be observed in principle such as "the amount of money paid in bribes" or "the number of times you were racially discriminated against." General subjective measures are derived from questions that ask about broad concepts, such as "the level of corruption" or "the extent of racism," which comprise both explicit components that can be observed in principle (e.g. bribes paid by private investors) and implicit components that cannot be observed (e.g. investment projects aborted in order to avoid bribes).

This distinction, as the paper goes on to show, is important for comparing the relative performance of subjective and objective measures. Admittedly, when measuring well-defined concepts, the use of objective data, if it exists, is preferable. Specific subjective measures provide, at best, a noisy approximation of the facts. When measuring broadly defined concepts, however, the use of objective data may not always be preferable insofar as the objective data overlooks implicit components relevant to the variable of interest.[3] When measuring racism in the workplace, for example, an objective account of the racist acts that take place might not be as good as a general subjective measure of the overall extent of racism. To see this more clearly, think of an extreme situation in which racism is so strong that it forces all minorities to leave a certain environment. In that case, the total number of racist acts observed would necessarily be equal to zero and would not provide a good measure for the extent of racism that prevails. A general survey question, in contrast, may provide a more accurate representation if the respondents' answers are sensitive to both explicit racism (racist acts that take place) and implicit racism (racist acts that would have taken place if minorities had stayed in that environment).

In order to conduct our study, we set up a lab experiment with crime from which we obtain the corresponding objective and subjective measures necessary for our analysis. For the measurement of well-defined concepts such as the frequency of theft or the amount of money stolen, our results indicate that specific subjective measures correlate well with the objective facts they intend to quantify, but that they also suffer from several systematic biases related to both cognitive problems and economic conditions. In addition, we find that the individuals' assessments of the frequency of theft are polluted by the amount of money taken away from them and vice versa; even when participants had full access to the information necessary to answer questions correctly. These results suggest that the identification of individual parameters through the use of specific survey questions, as advocated by recent literature, might be more problematic than presently thought.

In contrast, our results suggest that the use of general subjective measures might be less problematic than presently thought. In particular, our results indicate that general subjective measures can effectively capture changes in both the explicit and the implicit components of the variable being measured and, therefore, that they can be better suited for the study of broadly defined concepts than objective measures. In fact, in our study, general subjective measures of crime were better correlated to the levels of crime exogenously introduced in the lab than were objective measures such as the total amount of money taken or the number of times a theft took place. At the same time, in accordance with previous studies, our results indicate that general subjective measures are influenced by many of the same biases found in specific subjective measures. These biases include a recency bias (where the outcomes of the last five periods affect answers nearly twice as much as the outcomes of the first five periods); an intensity bias (where streaks of theft influence subjective perceptions more heavily than do dispersed theft acts of the same magnitude); and an income bias (where subjective answers are influenced by the level of payoffs received).

With these results at hand, we then re-evaluate two often-made claims about the perceived disadvantages of general subjective measures: (1) that general subjective measures are not as easy to interpret as objective measures because they are expressed in ordinal scales, and (2) that general subjective measures should be not be trusted because they move opposite to objective measures. We argue that neither of these claims are well justified; even though they are fully consistent with our data. First, we show that the inability to interpret the scale of general subjective measures is a problem that objective measures similarly face. Second, we show that subjective measures might move opposite to objective measures of related phenomena simply because of changes in implicit components that might not be accounted for in the objective measures.

[3] This point is demonstrated in a simple theoretical framework outlined in the Appendix.