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# Individual sensitivity to framing effects

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**Abstract**

Surveys are sometimes viewed with suspicion when used to provide economic values, since they are sensitive to framing effects. However, the extent to which those effects may vary between individuals has received little attention. Are some individuals less sensitive to framing effects than others? We use the theory of social representation to assign to each individual a new variable to serve as a proxy for the individual's sensitivity to framing effects. This allows to gather new and relevant information to limit the impact of framing effects. We examine two framing effects, starting-point bias and willingness-to-pay and willingness-to-accept divergence.


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## 1. Introduction

It has long been recognized that the design of a survey may influence respondents' answers. In the particular case in which respondents have to estimate numerical values, this implies that two different surveys may lead to two different valuations of the same object. Such a variation of answers, induced by non-significant change in the survey design, is called a framing effect. Consequently, surveys are sometimes viewed with suspicion when used to provide economic values, since framing effects may alter the quality of survey-based valuation. The existence of these effects is well documented (Levin et al., 1998). However, the extent to which they may vary between individuals has received little attention. Are some individuals less sensitive to framing effects than others? How to detect them? These are the questions addressed in this paper.

Our basic idea is to use the theory of social representation to assign to each individual a new variable. This variable represents a proxy for the individual's sensitivity to framing effects. According to this representation variable, we isolate two types of individuals. The first type is proved to be less sensitive to framing effects than the other. We examine two framing effects that are known to have a dramatic effect on valuation, namely, starting-point bias and willingness-to-pay (WTP) and willingness-to-accept (WTA) divergence. The results suggest that taking into account heterogenous sensitivity to framing effects is successful in limiting the impact of biases. Furthermore, they prove that

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the constructed representation variable is not correlated to any of the usual variables. Thus, using the representation variable allows researchers to gather relevant new information.

The paper is organized as follows. Section 2 details how social representation can be used to design a new individual variable. Section 3 presents a study of the problem of starting-point bias in contingent valuation surveys. Section 4 deals with WTA and WTP divergence. Section 5 provides a discussion, and Section 6 concludes.

## 2. Representation as a source of heterogeneity

Representations are defined in a broad sense by social psychologists as a form of knowledge that serves as a basis for perceiving and interpreting reality, as well as for guiding one's behavior. Representation could concern a specific object, or a more general notion of social interest.[2] The founding work (Moscovici, 1961) explores the representation of psychoanalysis. In the following decades, various topics have been investigated: representation of different cities, madness, remarkable places, hunting, AIDS, among others (see the different articles presented in Farr and Moscovici, 1984 and Moscovici, 1998). The theory of representation has proved useful in the study of economic subjects such as saving and debt (Viaud and Roland-Levy, 2000), or the electronic purse (Penz et al., 2004).

The basic structure of a social representation is composed of a central core and of peripheral elements (Abric, 1993). The central core contains the most obvious elements commonly associated with the object. They can be viewed as stereotypes or common sense. Those elements are not subject to any dispute, as everyone agrees that they are related to the object described. The core in itself does not contain much information and usually is not a surprise to an observer. The peripheral elements, however, contain fewer consensual elements and are less obvious. They represent potential changes in the social representation and indicate new elements that may in the near future become part of the core. They are, somehow, rivals of the core elements.

There are several ways to explore the composition of social representations of particular subjects (namely, ethnography, interviews, focus-groups, the content analysis of the media, questionnaires and experiments). In what follows, we will focus on a particular technique, which is the statistical analysis of word associations. These word associations are gathered through answers to an open-ended question such as "What are the words that come to mind when thinking of [the object]?" or "What does [the object] evoke to you?". Thus, the purpose of such questions is to investigate the words being spontaneously associated with a given object. The next step is thus to determine the core of the social representation, on the basis of those individual answers. Once the core has been found, we sort individuals according to those who refer to the core of the social representation and those who do not. This "aller-retour" between social and individual representations can be compared to an election system where individual opinions are aggregated, using majority voting. Once individuals have voted, it is possible to recognize who belongs to the majority and who does not. All in all, the task is to transform representations (i.e. lists of words) into a quantitative and individual variable.

The method consists of four steps, each of which is illustrated with an example, namely the Camargue representation.[3] The Camargue is a major wetland in the delta of the Rhône (south of France) covering 75,000 ha. Of exceptional biological diversity, it hosts many fragile ecosystems and is inhabited by numerous species. The survey was administered to 218 visitors to the Camargue at the end of their visit.[4] Note that the respondents had therefore spent some time in the Camargue.

### *Step 1: The data: collecting lists of words*

The usual way to collect information on representation is by open-ended questions. More precisely, we use a question such as: "What does [the object] evoke to you?" or "What are the words that come to mind when thinking of [the object]?". Individuals are expected to provide a list of words or expressions. Thus, the data take the form of ordered lists of words. The set of answers typically displays a large number of different words, as each individual provides different answers. Indeed, a great variety of words can be used to describe a given object (Vergès, 1994; Wagner et al., 1999).

[2] A survey of the theory and methods used to study social representations can be found in Wagner et al. (1999) and Canter and Breakwell (1993).
[3] This method was originally developed in Flachaire et al. (in press).
[4] See Claeys-Mekdade et al. (1999) for a complete description of the survey.