

---

# Eliciting Fast and Slow responses to nutritional labels

Paolo Crosetto\*<sup>1</sup> and Laurent Muller\*<sup>1</sup>

<sup>1</sup>Laboratoire d'Economie Appliquée de Grenoble (GAEL) – Institut national de la recherche agronomique (INRA) : UMR1215, Université Grenoble Alpes - Grenoble II – UMR GAEL / INRA, Université Grenoble Alpes, 1241 rue des Résidences 38400 - Saint Martin d'Hères, France

## Abstract

Cognitive and social psychology posits that humans employ a variety of both fast (heuristic, intuition, emotions) and slow (cost-benefit, deductive) reasoning strategies when faced with a problem. In economics, though, most if not all experimental procedures are built on the assumption of a slow, deliberate, maximising agent; an eventual use of heuristics is deduced from the deviations of observed behavior from the benchmark. We develop a new elicitation method that recognizes instead the dual nature of human cognition, and is able to directly elicit both fast and slow responses.

A decision maker (DM)  $i$  faces a choice among  $N$  alternatives, and is given  $T$  seconds to make up her mind. Each second her (provisional) choice is recorded. At the end of the allotted time one second is uniformly drawn, and the provisional choice recorded at that time determines the payoff. If no choice had been submitted at the drawn time, then the DM is assigned a uniform random choice in the alternative space. The design incentivises subjects to give a first, rough choice that they think improves on the default random allocation and then a second, thoughtful choice that would improve on the first.

We apply the method to food choice and nutritional labeling – a domain where there exists a clear fast-slow cleavage. Most food choices are a System One affair: intuition, habits, culture, hunger, all play a role. Food labels convey instead information that would be most relevant to System Two: nutrition, health, location, ingredients. In the literature it has long been argued that color-coded labels are 'more intuitive' but offer coarse information and are strictly inferior – from a System Two perspective – to analytical labels providing almost complete information.

We ask subjects two types of simple nutritional discrimination questions: analytic, detailed questions (*'which of these products contains less Salt?'*), and aggregate, comprehensive questions (*'which of these product has overall the best nutritional quality?'*). At the same time, we vary the type of label (color, numbers, aggregate, analytic) that is presented alongside the product. Subjects have to find the correct option among a small set of 4 products, described by their name, a picture, and a nutritional label. References are induced and performance can be objectively measured. We expose subjects to label-only, image-only, and image+label choice screens.

We ran the experiment within-subjects on 193 subjects, recruited from a general-population sample of adults living in the Grenoble Metro Area

---

\*Speaker

The results of the label-only treatment – used to calibrate the method and to see if it reliably delivers both fast and slow choices – are highly encouraging. The aggregate color-coded label generates fast, good choices; at the other side of the spectrum, a numeric-only label needs longer times to be effective but it eventually picks up. The mixed label, that combines colors {and} numbers, mimicks the behavior of the color label for the first seconds and of the number label later on. The analysis is still ongoing on the remainder of the dataset; a discrete choice duration model is being fine-tuned to fit the data.

**Keywords:** Fast&Slow, nutrition labels, bounded rationality, time constraints