



Socio-demographics, implicit attitudes, explicit attitudes, and sustainable consumption in supermarket shopping



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ABSTRACT

The aim of this research is to examine whether socio-demographics, implicit and explicit attitudes towards the environment predict sustainable consumer behaviour, measured using supermarket loyalty card data. The article uses an Implicit Association Test (IAT) and Likert scales to gauge implicit and explicit attitudes towards sustainable consumption in a real consumer sample, and measures demographic characteristics of participants. Results indicate that level of education is a key predictor of an aggregate measure of sustainable consumption, with a small part of this influence mediated by level of explicit environmental concern for climate change. Econometric modelling shows that explicit and implicit attitudes influence consumer decisions differently in specific food categories. Results, obtained with real consumer data, call into question the accepted socio-demographic profile of the green consumer and help identify conditions under which pro-environmental attitudes predict sustainable consumption.

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1. Introduction

In recent years, there has been increasing attention to the environmental impact of consumer behaviour. Evidence suggests that current consumption patterns in modern societies are unsustainable (Arrow et al., 2004; Daly et al., 2007), and policies are required to ensure that future generations have access to the same quantity and quality of consumption as present generations (Peattie, 2010; Vermeir & Verbeke, 2006). Sustainable consumption requires large-scale changes in consumer behaviour (Adger et al., 2009; Dietz, Gardner, Gilligan, Stern, & Vandenberg, 2009), which in turn will be favoured by a change in the underlying set of attitudes driving behaviour (Bohner & Dickel, 2011), i.e. how individuals feel

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about the environment. Although attitudes have often been shown to predict behaviour (Ajzen & Fishbein, 1977), research has frequently found that pro-environmental attitudes do not always translate into pro-environmental behaviour (Prothero et al., 2011; Steg & Vlek, 2009). In the case of food, in 2012 only 6% of UK consumers state that “buying organic products is not important”, with 80% of them claiming to purchase organic food; yet organic sales only account for a 1% share of the market (Soil Association, 2013).

This article tests whether measures of implicit and explicit attitudes predict environmentally-friendly food consumption using actual supermarket shopping data. The behavioural economics literature often explores the relation between attitudes and behaviour by using measures of *explicit attitudes* (see e.g. Costa & Kahn, 2013) in the form of self-reported ratings that may be expected to reflect a conscious thought process (Hofmann, Rauch, & Gawronski, 2007). Implicitly, these models attribute the failure to convert attitudes into behaviour to cognitive barriers (e.g. ignorance, or distrust in information; see Gifford, 2011), or external constraints (e.g. income; see Schor, 2005). However, there is growing awareness that consumer decision-making is also driven by an automatic (i.e. non-deliberate) component (Alós-Ferrer & Strack, 2014; Samson & Voyer, 2012), with heuristics and habits¹ also influencing behaviour (Gifford, 2011). As a result, the relation between consumer decision-making and attitudes should also include measures of *implicit attitudes*, which capture automatic cognition (e.g. Bohner & Dickel, 2011; Gawronski, 2013), and which have been shown to predict environmentally-friendly behaviours under time pressure in laboratory settings (Beattie & Sale, 2011).

Models of behaviour that account for both deliberate and automatic cognition are known as dual-system models (see Alós-Ferrer & Strack, 2014; Brocas & Carrillo, 2014; Dhar & Gorlin, 2013; Samson & Voyer, 2012). Evidence on the link between implicit attitudes and behaviour is mostly based on research conducted in experimental settings rather than on real-life data. An innovation of the present research is the measurement of the impact of both implicit and explicit attitudes to the environment on actual consumer behaviour. The focus of the article is on food choices, which account for a large component of the carbon footprint of UK households (e.g. Panzone, Wossink, & Southerton, 2013).

The next section reviews the links between socio-demographics, attitudes, and consumer behaviour with relation to sustainable consumption. Section 3 describes the dataset used in the empirical analysis, which contains demographic characteristics, explicit and implicit attitudes, and actual expenditures for a sample of consumers at Tesco, the largest UK food retailer. The first set of analyses reported in Section 4 explores the role of demographic variables, and measures of implicit and explicit attitudes to predict an index developed to measure the aggregated sustainability of a shopping basket (ESS, Panzone et al., 2013), as well as aggregate basket expenditures. A second set of analyses uses these same demographic and attitude variables to predict sustainable choices within four product categories, using an econometric model of demand, the Linear Almost Ideal Demand System (LAIDS) (Deaton & Muellbauer, 1980), which identifies structural demand parameters. Section 5 discusses the implications of the results, while Section 6 concludes.

2. Pro-environmental attitude, demographics and sustainable consumer behaviour

2.1. Pro-environmental attitudes and sustainable consumption

Pro-environmental behaviour change requires consumers to develop more positive pro-environmental attitudes over time to make consumption more sustainable (Steg & Vlek, 2009). An influential perspective on the relation between attitudes and behaviour comes from expectancy-value models (e.g. Ajzen, 1991), which view consumers as forming attitudes through active cognition: they gather information on the attributes forming an object (e.g. carbon footprint and calorific content of foods), weight each attribute on the basis of prior beliefs, and derive the final perceived value of the good (e.g. Bentler & Speckart, 1979; Cohen, Fishbein, & Ahtola, 1972). Once formed, these attitudes are stored in memory, revised if new relevant information becomes available (e.g. Fazio, 2007; Jacoby et al., 2002; Petty, 2006; Sanbonmatsu & Fazio, 1990), and used any-time they are activated (Fazio, 2001). This deliberate cognitive process leads to evaluations called *explicit attitudes*, which are measured by asking individuals to report their agreement to statements on tailored metrics (e.g. Likert scales).

Research in economics has incorporated measures of explicit environmental attitudes to predict explain behaviour (e.g. energy consumption in Costa & Kahn, 2013). This perspective presupposes that attitudes to the environment are formed by a calculative individual who determines his utility for each option in a choice set after accurately considering his attitude towards all alternatives, an idea that seems to correctly depict food consumption only in information-intensive markets (e.g. wine, see Hamlin, 2010). Whilst easy to measure, however, explicit attitudes may not measure the underlying attitude constructs, but the understanding the individual has of his own relation with the object, as they incorporate cognitive and motivational stimuli unrelated to attitudes (Gawronski, Hofmann, & Wilbur, 2006). Moreover, most choices in retail environments are made under time pressure, with a median estimated choice time of 1 s (Moorman, 1996, p. 36), suggesting that automatic cognition should prevail in supermarket grocery shopping (Beattie & Sale, 2011). This point is supported by research that occasionally finds a gap between self-reported attitude to the environment and consequent behaviour (e.g. organic purchasing in Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007).

¹ Habits are the only type of automatic behaviour occasionally used in economic modelling, where they are modelled as lagged consumption (e.g. Blanciforti & Green, 1983; Browning & Collado, 2007).

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