Appetite 83 (2014) 135–143

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

Healthy–unhealthy weight and time preference. Is there an association? An analysis through a consumer survey ☆

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ARTICLE INFO

Article history:
Received 19 July 2013
Received in revised form 7 July 2014
Accepted 8 August 2014
Available online 22 August 2014

Keywords:
Time preference
Economics of obesity
Consumer
Ordinal Regression Model

ABSTRACT

Individual time preference has been recognized as key driver in explaining consumers' probability to have a healthy weight or to incur excess weight problems. The term time preference refers to the rate at which a person is disposed to trade a current satisfaction for a future benefit. This characteristic may affect the extent at which individuals invest in health and may influence diet choices. The purpose of this paper is to analyse which could be the role of time preference (measured in terms of diet-related behaviours) in explaining consumers' healthy or unhealthy body weight. The analysis also considers other drivers predicted to influence BMI, specifically information searching, health-related activities and socio-demographic conditions. The survey was based on face-to-face interviews on a sample of 240 consumers living in Milan. In order to test the hypothesis, we performed a set of seven ORM regressions, all having consumers' BMI as the dependent variable. Each ORM contains a different block of explanatory variables, while time preference is always included among the regressors. The results suggest that the healthy weight condition is associated with a high orientation to the future, with a high interest in nutrition claims, a low attention to health-related claims, and a high level of education. On the opposite, the probability to be overweight or obese increases when consumers are less future-concerned and is associated with a low searching for nutrition claims and to a high interest in health claims.

Introduction

Consumer attitude to health has a key role in driving food choices and shaping dietary patterns (Wansink, Sonka, & Haesler, 2004). This individuals' attitude may be reflected in a set of health-oriented choices including the research of a balanced diet, the preference for healthy food products (such as fruit and vegetable), and the reduced consumption of junk food and big portions. A high attention to health also leads consumers to be more oriented to maintain a healthy weight, decreasing the risk of problems related to excess body weight. Nonetheless, the dramatic increase in overweight and obesity rates clearly shows that unhealthy food consumptions and over-nutrition are currently widespread. Indeed, according to OECD data since 1980 overweight and obesity rates are doubled and even tripled in many OECD countries. Nowadays, the most troubling data come from the United States where more than 36% of adults are obese, but the numbers of this disease are also growing rapidly in many European countries. With regard to the EU situation, OECD data reveal that the highest obesity rates (more than 20%) are registered in the United Kingdom, Hungary, Luxemburg and Czech Republic. Moreover, OECD predicts that these numbers are expected to grow and in 2020 around two out of three people will have a BMI value higher than 25 (OECD, 2012).

Given the worldwide relevance of the problem, economists in the last decade tried to understand the main causes of obesity analysing factors such as the food technological improvements, the industrialization and the resulting mass production of food, the price reduction of energy-dense food, the increased availability of junk food, and also the gradual shift towards a more and more sedentary lifestyle (Cutler, Glaeser, & Shapiro, 2003). Besides these factors, which have been amply investigated in the economic literature, consumers' time preference has been recently recognized as key driver in explaining weight gain or, on the opposite, consumers' maintenance of a healthy weight condition.

The term time preference refers to the rate at which an individual is disposed to trade a current satisfaction for a future benefit (Becker & Mulligan, 1997; Bishai, 2001; Komlos, Smith, & Bogin, 2004; Smith, Bogin, & Bishai, 2005). People with high time preference show a tendency to privilege short-term rewards discounting

☆ *Acknowledgements:* The paper was carried out within the research project 'Mobile Service for Agro Food' (M4A). This project has been financed by Lombardy Region administration, contract n. UNIAGI-14167. The information in this document reflects only the authors' views and the Lombardy Region is not liable for any use that may be made of the information contained therein. The paper was presented at the 7th International European Forum on 'System Dynamics and Innovation in Food Networks', Innsbruck-Igls, Austria, 18–22 February 2013. The authors thank the anonymous reviewers for their comments.

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http://dx.doi.org/10.1016/j.appet.2014.08.011
0195-6663/

long-term benefits; on the contrary, those having a low time preference are more likely to renounce the present gratification to get health improvements in the future. This characteristic seems to be able to affect consumers' food choices and the extent at which people invest in health.

Michael Grossman in his work on the demand for health (1972) introduced the concept of time preference in relation to health issues. He saw health as an economic good, describing it as a capital stock that everyone inherits at birth, and that depreciates with ageing. In his study he concluded that this depreciation can be offset by some investments, both direct investments like medical care, and indirect investments, which can be grouped in the so called 'health behaviours' (Grossman, 1972). They are defined as 'behaviour patterns, actions and habits that relate to health maintenance, to health restoration and to health improvement' (Gochman, 1997). An individual's state of health is therefore the result of his/her health investments. According to Grossman's theory, time preference assumes a key role, because people with high time preference will invest in health to a less extent relative to those with low time preference.

Investments in health include healthy food habits, which are strictly related to a decreased probability of consumers to incur overweight and obesity problems. Like other health behaviours, food choices represent intertemporal decisions in which consumers always have to decide whether to get a current utility or a delayed utility (Bishai, 2001). That is, consumers prefer healthy food instead of unhealthy ones, only if the value of the improvements in future wellbeing exceeds the current pleasure derived from consumption. The consideration attributed to future outcomes might depend on the individual time preference: consumers with high time preference are generally characterized by low self-control and tend to consider present utility more than future benefits; low time preference is, instead, associated with high self-control levels (Smith et al., 2005). These individuals are more patient and tend to value future gains more than present gratifications (Zhang & Rashad, 2008). Thus, time preference can be also seen as measure of consumers' impatience (Chapman, Brewer, Coups, Brownlee, & Leventhal, 2001; Frederick, Loewenstein, & O'Donoghue, 2002).

Several studies have investigated the relationship between time preference and health outcomes, but only a few have explored the specific relation of time preference with consumers' BMI (Ikeda, Kang, & Ohtake, 2010; Komlos et al., 2004; Papoutsi, Drichoutis, & Nayga, 2012; Smith et al., 2005). Hence, the purpose of this paper is to further examine this relationship. In order to better understand which could be the role of time preference in explaining a healthy weight or an unhealthy weight condition (overweight and obesity), we decided not to use the time preference proxies commonly employed in previous works (such as choice tasks or pricing tasks). For the first time to our best knowledge, this paper attempts to focus on consumer time preference for food, using a broad-proxy, which is directly related to food choices. The hypothesis tested here is that consumers that are more future-oriented in their diet choices tend to attribute more importance to health, and consequently are more likely to have a healthy weight. On the contrary, those who attribute more value to the present utility are expected to be more likely to become overweight or obese. Given the multiple factors that can affect consumer body weight, the analysis also considers other drivers predicted to influence BMI.

The empirical analysis has been conducted through a consumer survey using face-to-face interviews in the city of Milan (Italy). We decided to interview consumers in Milan, as we aimed at analysing a consumer sample of a big European metropolis. Moreover, Italy provides an interesting case to study the determinants of healthy weight, as the prevalence of adult obesity is quite low (around 10% – Istat, 2011) and seems to have only slightly increased in the last years (Micciolo et al., 2010). This relatively low rate may be due to the lack of certain unhealthy food consumption patterns, such as the big-size portions or the fast-food consumption habit, and to the widespread presence of the Mediterranean diet, which is recognized to be effective in preventing excess weight gain and other diet-related diseases (Schröder, 2007). Nonetheless, Di Giuseppe et al. (2008) showed that this kind of diet is becoming more and more unpopular in Italy, above all among the youngest. Indeed, childhood overweight and obesity rates are among the highest in Europe (more than 35% of children between 7 and 11 years old can be considered overweight or obese), and represent a major public concern due to the increased probability of these children to become obese adults.

The present work is organized as follows: in the second section we illustrate our conceptual framework and describe in detail how the considered variables could affect consumers' body weight; in the third section, we explain the methodological approach consisting in a set of seven Ordinal Regression Models followed by the marginal effect computation; in the fourth section we analyse the results; finally, in the last section, we provide the discussion and the conclusions.

Conceptual framework of the study

It is well known that the relation between food consumption choices and consumers' body weight problems is influenced by a lot of interacting factors (Dìaz-Mèndez & Gòmez-Benito, 2010). Among these, there are for example some genetic and biological factors, cultural norms (e.g., attachment to traditions), religious principles (e.g., taboo-food), environmental factors (e.g., the technological improvements), and psychological aspects (Köster, 2009; Miljkovic, Nganje, & De Chastenet, 2008; Peréz-Cueto et al., 2010; Pouliou & Elliot, 2010; Rosin, 2008). Also the individual attitude to health can affect one's probability to maintain a healthy weight or, on the contrary, to incur overweight and obesity. Moreover, the economic and sociological literature concerning diet-related problems brings to the fore the primary role of the social, economic and demographic conditions of consumers in influencing body weight (Baum & Ruhm, 2009; Costa-Font & Gil, 2008; Huffman & Rizov, 2007; Moreira & Padrão, 2006). In line with these findings and according to Grossman's theoretical model, we designed our conceptual framework focusing, on the one hand, on the variables that can be related to consumer health attitude and, on the other hand, on the socio-demographic conditions. In detail, we analysed consumers' attitude to health considering time preference, that constitute the main focus of this paper, together with food-related information searching (consumers' searching for nutrition and health claims) and health-related activities (physical activity and weight-check). With regard to the socio-demographics we took into account gender, age, education, the household size, and the working condition in order to analyse the role of the individuals' socio-demographic background.

The next subsections explain in more details how consumers' time preference and the other drivers included in the analysis can affect body weight, by providing the concerning literature review (Fig. 1).

Time preference

Time preference is recognized in the economic literature to have an effect on individuals' health-related behaviours, such as smoking and having a healthy diet (Adams & Nettle, 2009; Chapman & Elstein, 1995; Lawless, Drichoutis, & Nayga, 2013; Robb, Huston, & Finke, 2008). Particularly, consumers characterized by high time preference tend to heavily depreciate the value of future health benefits and this attitude can significantly influence their food choices. Indeed, food choices always imply a cost and benefit analysis, since