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Original Citation:

Which are the determinants of green purchase behaviour? A study of Italian consumers / Dangelico, Rosa Maria; Nonino, Fabio; Pompei, Alessandro. - In: BUSINESS STRATEGY AND THE ENVIRONMENT. - ISSN 0964-4733. - STAMPA. - 30:5(2021), pp. 2600-2620. [10.1002/bse.2766]

Availability:

This version is available at <http://hdl.handle.net/11589/247081> since: 2025-01-28

Published version

DOI:10.1002/bse.2766

Publisher:

Terms of use:

(Article begins on next page)

**WHICH ARE THE DETERMINANTS OF GREEN PURCHASE BEHAVIOUR?
A STUDY OF ITALIAN CONSUMERS**

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ACCEPTED VERSION OF THE ARTICLE:

Dangelico, R. M., Nonino, F., & Pompei, A. (2021). Which are the determinants of green purchase behaviour? A study of Italian consumers. *Business Strategy and the Environment*, 30(5), 2600-2620.

FINAL VERSION AVAILABLE AT: <https://onlinelibrary.wiley.com/doi/abs/10.1002/bse.2766>

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Abstract

Green purchase behaviour is receiving a growing attention in the academic community as understanding it is crucial for the growing number of companies developing and marketing green products. In order to provide a broader and novel picture of the phenomenon, this study extends the widely used Theory of Planned Behaviour (TPB) model in several ways, through a large survey of Italian consumers. First, three dimensions of green purchase behaviour are considered, namely the willingness to pay a premium price, the green purchase frequency, and the green purchase satisfaction. Second, several antecedents are considered simultaneously. Third, new (consumer creativity) or so far marginally studied (materialism and green practices) antecedents are included. Fourth, the mediating roles of green purchase satisfaction and willingness to pay a premium price in the link between the considered antecedents and the frequency of green purchase are investigated.

Results show that the three dimensions of green purchase behaviour have different antecedents, so highlighting that green purchase behaviour is a multi-faceted phenomenon that should not be studied as a single general concept. Personal norms and value-for-money emerged to be very relevant predictors. The significant effects of creativity, materialism, and green practices provide evidence that extending the TPB model with these three antecedents is useful to more deeply understand green purchase behaviour. Green purchase satisfaction is the strongest predictor of purchase frequency and mediates the effects of personal norms and value-for-money.

Keywords: green purchase behaviour; green consumers; pro-environmental behaviour; green consumer behaviour; green products; environmental sustainability; sustainable consumption; Theory of Planned Behaviour.

1. INTRODUCTION

A growing number of consumers claims that protecting the natural environment is very important and most of them believe to play a relevant role in this (European Commission, 2017). Further, consumers increasingly state to prefer sustainable brands and this is confirmed by the higher growth of products with sustainable claims compared to traditional alternatives in some categories (White et al., 2019). However, there is a big gap between intention and actual behaviour (Atkinson, 2015; White et al., 2019). Green consumption refers to the choice of environmentally-friendly goods and services (Atkinson, 2015) and emerged to be a highly complex process affected by a number of different aspects, such as consumer values, norms, and habits (Peattie, 2010). This prompts the need for research characterized by a greater level of interdisciplinarity to study the topic (Peattie, 2010). Despite the growing number of studies developed during the past few years on the determinants of green consumption behaviour (e.g., Hartmann and Apaolaza-Ibanez, 2012; Joshi and Rahman, 2015; Michaud and Llerena, 2011; Moser, 2015; Sammer and Wüstenhagen, 2006; Sharma and Foroapon,

2019; Testa et al., 2020) and pro-environmental behaviour in general (e.g., Alzubaidi et al., 2020; Carfora et al., 2017; de Leeuw et al. 2015), there is a growing number of calls for research that sheds light on the determinants of pro-environmental behaviours, giving broader theoretical and behavioural explanations (as highlighted by Alzubaidi et al., 2020).

Answering to these calls, our study further investigates the determinants of pro-environmental behaviour, with specific regard to green purchase behaviour, by extending the Theory of Planned Behaviour (TPB) (Ajzen, 1991) in order to provide a broader and novel picture of the process. Specifically, several individual and situational factors are considered as antecedents: environmental concern, social value, personal norms, materialism, innovativeness, creativity, green practices, scepticism towards ecolabels, product unavailability, product functional value and value-for-money. Further, three dimensions of green purchase behaviour are considered: the willingness to pay a premium price (which refers to intentions), the green purchase frequency, and the degree of satisfaction deriving from the green purchase. Finally, the mediating roles of green purchase satisfaction and willingness to pay a premium price in the link between the considered antecedents and the frequency of green purchase are investigated.

The following research questions guided our study:

RQ1: Which are the determinants of green purchase satisfaction?

RQ2: Which are the determinants of the willingness to pay a premium price for green products?

RQ3: Which are the determinants of green purchase frequency?

To answer these research questions, a large survey among Italian consumers was conducted. First, we analysed the meaning given to green products, the purchased categories of green products, and the willingness to pay a premium price for green products based on a sample of 921 consumers. Then, we investigated the effect of a wide number of factors on green purchase satisfaction, willingness to pay a premium price and green purchase frequency based on a sub-sample of 734 consumers (those

for whom the value of income was available). Our study contributes to the literature on green consumer behaviour in several ways. First, it extends and integrates existing theoretical models by including, and simultaneously considering, several types of antecedents. Second, to the best of our knowledge, this is the first empirical study to analyse the effect of consumer creativity on green purchase behaviour. Third, it considers three different aspects of the green purchase behaviour, so leading to a deeper understanding of the process. The simultaneous inclusion of several antecedents as well as the consideration of different aspects of the green purchase behaviour contributed to provide a more holistic view of the phenomenon compared to extant studies. Fourth, the mediating roles of green purchase satisfaction and willingness to pay a premium price in the link between the considered antecedents and green purchase frequency are investigated.

The paper is organized as follows. In Section 2, the theoretical background is provided and hypotheses are developed. Methodological details are reported in Section 3, while results are described in Section 4. Section 5 reports a discussion of results; finally, implications, limitations, future research directions, and conclusion are provided in Section 6.

2. THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

Several theories have been used as reference framework to study pro-environmental behaviour so far, being the Theory of Planned Behaviour (TPB) (Ajzen, 1991) the most frequently used (Alzubaidi et al., 2020). Three main determinants of intentions are reported in the original TPB model of Azjen (1991): attitude, subjective norm, and perceived behavioural control. Several extensions of the model have been developed overtime adding new dimensions or replacing existing ones. For instance, extended TPB models have been developed with the inclusion of self-identity and past behaviour (Carfora et al., 2017; Whitmarsh and O'Neill, 2010), environmental concern and beliefs (Bamberg, 2003), country of origin and price (Hsu et al., 2017), willingness to pay and personal norms (Moser, 2015), materialism and innovativeness (Alzubaidi et al., 2020). The main determinants of green

purchase behaviour may be grouped into two main categories: individual and situational factors (Joshi and Rahman, 2015). Individual factors include environmental concern, habits, perceived consumer effectiveness, perceived behavioural control, values and personal norms, trust, and knowledge. Situational factors encompass price, product availability, subjective or social norm and reference groups, product attributes and quality, store related attributes, brand image, eco-labelling.

In this paper we extend the TPB model in several ways. First, according to Fransson and Garling (1999) and similarly to Alzubaidi et al. (2020), in our theoretical model, the environmental concern is used as attitude. Social value as well as personal norms (also used by Moser, 2015) are employed as representations of subjective norms, so that both social pressure and its interiorization into moral obligation are taken into account. Further, instead of perceived behavioural control, product unavailability and scepticism towards ecolabels are included as they represent constraints that can hinder the perceived behavioural control in terms of consumer's opportunity to actually protect the natural environment through the purchase of green products. Finally, several individual and situational factors are included. Specifically, among individual factors, materialism and innovativeness (as in Alzubaidi et al. 2020) as well as creativity and green practices are added. With regard to situational factors, product functional value and value-for-money further extend the model. We also extend the TPB model on the outcomes' side. Actually, we considered the willingness to pay a premium price (which refers to intentions), the frequency of green purchase (consistently with Moser (2015) who focused on actual behaviour rather than intention), as well as the degree of satisfaction deriving from the green purchase.

In the following, relevant literature related to each of the above mentioned antecedents and their links with green purchase behaviour is reviewed and hypotheses developed.

2.1. Environmental concern

Environmental concern has been defined as *“the degree to which people are aware of problems regarding the environment and support efforts to solve them and or indicate the willingness to contribute personally to their solution”* (Dunlap and Jones, 2002: p. 485).

Many studies highlighted that environmental concern positively affects pro-environmental intention and behaviour, being one of the most relevant antecedents (e.g., Alzubaidi et al., 2020; Lee et al., 2014; Mostafa 2006; Pierce et al., 1999; Stern et al., 1993). For instance, Lee et al. (2014) found that environmental concern positively affects green purchase and green citizenship intentional behaviours, while Alzubaidi et al. (2020) showed that environmental concern positively affects intention to buy green products. Testa et al. (2020) highlighted that environmental concern positively and indirectly influences the purchase of circular packaging through individual propensity to seek for environmental information. Further, in a survey of Egyptian consumers, Mostafa (2006) found that environmental concern was positively related to consumers' intention to buy and frequency of purchase of green products. Other studies suggested that consumers concerned about the natural environment not only prefer to purchase products less harmful to the environment, but they are also willing to pay more to do so (Coddington and Florain 1993; Laroche et al., 2001; Ottman 1992). Regarding the satisfaction due to green product purchase, Okada et al. (2019) demonstrated, through a survey of Japanese population, that environmental awareness has an indirect effect on the post-purchase satisfaction of electric vehicles users.

Thus, we develop the following hypotheses:

Hypothesis 1a: The higher the environmental concern, the higher the purchase satisfaction of green products.

Hypothesis 1b: The higher the environmental concern, the higher the willingness to pay a premium price for green products.

Hypothesis 1c: The higher the environmental concern, the higher the frequency of green product purchase.

2.2. Social value

Social value is defined as “*the perceived utility acquired from an alternative’s association with one or more specific social groups.*” (Sheth et al., 1991: p.161).

Social value drives the sales of many types of success products, generally high visible products (e.g. jewellery and clothing) or services that may enhance the possibility to be part of a group. In fact, social value is often linked to people’s desire to possess luxury fashion brands that may serve as symbolic markers of group membership (Kim et al., 2010; Vigneron & Johnson, 2004).

Since the social value influences the consumers’ perception of product value, consumers with higher perceived social value will have higher willingness to pay a premium price (e.g., Li et al., 2012).

Social value has been shown to positively influence green consumption behaviour among consumers that show choice preference for products with green credentials (Biswas and Roy, 2015a). Further, Goncalves et al. (2016) found that social value, combined with functional value, is sufficient to predict green product purchase.

Further, the study by Hur et al. (2015) on product satisfaction for hybrid cars showed that social value positively influences the satisfaction of consumers’ hybrid car experience and their satisfaction, in turn, significantly influences their loyalty to hybrid cars’ category.

Thus, we hypothesize that:

Hypothesis 2a: The higher the social value, the higher the green purchase satisfaction.

Hypothesis 2b: The higher the social value, the higher the willingness to pay a premium price for green products.

Hypothesis 2c: The higher the social value, the higher the frequency of green product purchase.

2.3. Personal norms

Personal norms refer to the feelings of strong moral obligation to adopt altruistic or environmentally-friendly behaviour (Moser, 2015; Schwartz, 1977). Consumers’ personal norms, in terms of what

they perceive to be morally right, strongly affect green consumption behaviour (Moser, 2015; Peattie, 2010; Thøgersen, 1999; Jackson, 2005; Thøgersen and Ölander, 2006).

Personal norms are also strongly correlated with the willingness to pay (Wiidegren, 1998).

Furthermore, consumers experience a direct, personal satisfaction arising from the contribution of any increase in the common good, which Andreoni (1990) calls the “*warm glow of giving*”. This intrinsic feeling is a consequence of the moral satisfaction generated by contributing to the environmental common good (Kahneman and Knetsch, 1992; Nunes and Schokkaert, 2003; Ritov and Kahneman, 1997).

Based on these considerations, we hypothesize that:

Hypothesis 3a: The higher the personal norms, the higher the purchase satisfaction of green products.

Hypothesis 3b: The higher the personal norms, the higher the willingness to pay a premium price for green products.

Hypothesis 3c: The higher the personal norms, the higher the frequency of green product purchase.

2.4. Product unavailability

Distribution intensity has been commonly defined as the number of intermediaries used by a manufacturer within its trade areas (Bonoma and Kosnik 1990; Corey et al., 1989; Stern et al., 1996) and affects the availability of products experienced by consumers.

With intensive distribution consumers spend less time searching and traveling to stores, experiencing convenience in purchasing and perceiving more value for the product (Ferris et al., 1989; Smith 1992).

This leads to higher levels of consumer satisfaction, perceived quality, and brand loyalty (Yoo et al., 2000).

With regard to the green product market, the lack of green product availability has been identified as a relevant barrier to green purchase negatively affecting green purchase intention and behaviour (e.g., Gleim et al., 2013; Manget et al., 2009; Wiederhold and Martinez, 2018; Young et al., 2010). On the

contrary, green product availability positively affects green purchase intention and behaviour (e.g., Tarkiainen and Sundqvist, 2005).

Green product availability in shops can be an issue for consumers, with relevant differences among countries (European Commission, 2013).

Thus, we hypothesize that:

Hypothesis 4a: The higher the physical unavailability of green products, the lower the purchase satisfaction of green products.

Hypothesis 4b: The higher the physical unavailability of green products, the lower the willingness to pay a premium price for green products.

Hypothesis 4c: The higher the physical unavailability of green products, the lower the frequency of green product purchase.

2.5. Scepticism towards eco-labels

Eco-labelling aims at informing consumers about the environmental impact or performance of a given product or service (Gallastegui, 2002). However, often, consumers are not even aware of eco-labels (European Commission, 2017). Moreover, many sources of confusion can be acknowledged. First, worldwide there is a huge number of eco-labels sponsored and administered by governments, environmental non-government organizations (NGOs), or business associations¹. Second, eco-labels can take different forms: marks or logos awarded to products for the fulfilment of specific criteria, environmental product declarations (transparent, objective and third-party certified reports of a product environmental impact through its lifecycle) or self-declared environmental claims (such as “recyclable”, “compostable”, “degradable”) (International Organization for Standardization, 2019). The credibility of environmental claims is often undermined by the use of terms such as ‘bio’, ‘green’, ‘environmentally-friendly’ perpetrated by many companies, in order to overstate their products’

¹ <http://www.ecolabelindex.com/> Last accessed on 7th October 2020.

attributes, so altering consumers' perceptions and creating confusion (Ellen et al., 1991; Hemmelskamp and Brockman, 1997). Due to the great amount of different and often confusing claims, consumers are often sceptical about environmental claims and this may cause a gap between what consumers are ready to pay and what they really pay for a green product (Morris, 1997). Actually, in order to drive consumers towards green consumption behaviour, information about products' environmental impact should be comprehensible and credible (Prakash, 2002). According to this, the OECD (2005) showed that consumers are often willing to pay more for eco-labelled products and that the premium they are prepared to pay is affected by some factors, such as their confidence in the certifying organization and the type of additional information provided. These results are supported by other studies' findings referred to "greener" vehicles (Teisl et al., 2008) and "green" electricity (Ek and Söderholm, 2008; Salmela and Varho, 2006).

In this context, consumers' scepticism may arise from different sources, such as the lack of information, its ambiguity or its low credibility, the lack of confidence in the certifying organization, and the too high amount of different labels. This scepticism can be expected to negatively affect the green purchase behaviour.

Based on the above considerations, we develop the following hypotheses:

Hypothesis 5a: The higher the scepticism towards eco-labels, the lower the purchase satisfaction of green products.

Hypothesis 5b: The higher the scepticism towards eco-labels, the lower the willingness to pay a premium price for green products.

Hypothesis 5c: The higher the scepticism towards eco-labels, the lower the frequency of green product purchase.

2.6. Materialism

Belk (1985) defined materialism as the importance attached to worldly possessions, while Browne and Kaldenberg (1997) stated that materialism is a cluster of values related to possessions.

Possessions affect perceptions of well-being (Burroughs and Rindfleisch, 2002) and act as identity markers (Micken and Roberts, 1999). Belk (1985, p. 265) highlighted that: *“At the highest levels of materialism, such possessions assume a central position in a person’s life and are believed to provide the greatest source of satisfaction and dissatisfaction”*.

Kilbourne and Pickett (2008) demonstrated that materialism has a negative effect on environmental beliefs, that in turn positively affect environmental concern and environmentally responsible behaviours (including consumption). Thus, materialism negatively affects consumers’ green consumption behaviour. More recently, Alzubaidi et al. (2020) found that materialism negatively affects purchase intention of green products. Hultman et al. (2015), in a study in the sector of ecotourism, found that materialistic values exert a negative effect also on the willingness to pay a premium price. Furthermore, Tilikidou and Delistavrou (2004) stated that less materialistic people are more likely to act in favour of environmental protection in post-purchase pro-environmental activities.

Based on these considerations, we hypothesize that:

Hypothesis 6a: The higher the materialism, the lower the purchase satisfaction of green products.

Hypothesis 6b: The higher the materialism, the lower the willingness to pay a premium price for green products.

Hypothesis 6c: The higher the materialism, the lower the frequency of green product purchase.

2.7. Consumer innovativeness

Consumer innovativeness can be described as *“as the predisposition to buy new and different products and brands rather than remain with previous choices and consumption patterns”* (Steenkamp et al., 1999: 56). Rogers (1962) described and explained the process by which innovations are diffused and adopted in the consumer community, divided into different adopters’ categories, with the most innovative one being the “innovators”.

Biswas and Roy (2015b) found that consumer innovativeness positively affects behavioural intention to buy and use green products. In addition, they found that this intention towards green product consumption brings behavioural intentions to pay a “green” premium price. The presence of a significant influence of consumer innovativeness on green consumption behaviour was also highlighted by Lao (2014). More recently, Alzubaidi et al. (2020) found that consumer innovativeness (related to new green products) positively influences pro-environmental behavioural intention. A different viewpoint is provided by Testa et al. (2020), who found that consumer innovativeness negatively affects the purchase of circular packaging.

Since most evidence suggests that consumers’ innovativeness has a positive effect on green consumer behaviour, we hypothesize that:

Hypothesis 7a: The higher the consumer innovativeness, the higher the purchase satisfaction of green products.

Hypothesis 7b: The higher the consumer innovativeness, the higher the willingness to pay a premium price for green products.

Hypothesis 7c: The higher the consumer innovativeness, the higher the frequency of green product purchase.

2.8. Consumer creativity

Creativity is referred to the capacity of people to generate ideas, solutions, inventions, or products that are divergent (from traditional solutions) and relevant (useful to solve a given problem) (Smith and Yang, 2004). Creative individuals have broad interests, a strong energy, are independent from the judgment of other people, generally value aesthetic qualities and are attracted by complexity (Barron and Harrington, 1981). The concept of creativity seems to be close to the concept of consumer innovativeness used by Im et al. (2003) as related to consumer innovative cognitive style and personality. The authors found a positive, although weak, effect of this factor on new-product adoption behaviour.

In the environmental domain, very limited attention has been devoted so far to the relationship between consumer creativity and green consumption behaviour. Yang et al. (2015) integrated the environmental sustainability and consumer creativity perspectives highlighting how consumer creativity can encourage pro-environmental behaviour and discussing the implications for advertising.

Despite the limited amount of previous research on the topic, a positive influence of consumer creativity on pro-environmental behaviour seems to be suggested, so that the following hypotheses can be formulated:

Hypothesis 8a: The higher the consumer creativity, the higher the purchase satisfaction of green products.

Hypothesis 8b: The higher the consumer creativity, the higher the willingness to pay a premium price for green products.

Hypothesis 8c: The higher consumer creativity, the higher the frequency of green product purchase.

2.9. Green practices

Green practices include a wide variety of daily actions for environmental protection, such as energy saving, recycling, waste reduction, green mobility behaviour (Sharma and Gadenne, 2014).

Magnusson et al. (2003) found that green practices, such as electricity saving, reduced use of car, purchase of eco-labelled products, positively affect the consumption of organic food, while recycling displayed a significant influence on the purchase of only one out of four categories of food. Eze and Ndubisi (2013) highlighted that pro-environmental behaviour (aimed at reducing resource and energy consumption, using non-toxic substances, and minimizing waste production) is positively correlated with green purchase behaviour, but does not significantly affect it. Further, Tsakiridou et al. (2008) highlighted that previous experience with organic products positively influence future purchase behaviour, while Klöckner and Matthies (2004) showed that, in the transportation mode choice, habit acts as a moderator of the relationship between personal norms and behaviour and can, thus, influence

the choice. More recently, Testa et al. (2020) found that pro-environmental behaviour positively affects the purchase of circular packaging through the mediating effect of individual propensity to seek information on product environmental characteristics.

White et al. (2019) highlighted that there is a sort of domino effect among green practices, so that if consumers adopt one environmentally-friendly behaviour, they are more likely to adopt other green practices in the future.

Green practices could, thus, be expected to influence green consumption behaviour as they become part of the consumer daily habits, reinforce consumer attention towards the protection of the natural environment, and so influence the purchase decisions in favour of greener ones.

Based on these considerations, we can hypothesize that:

Hypothesis 9a: The higher the consumer green practices, the higher the purchase satisfaction of green products.

Hypothesis 9b: The higher the consumer green practices, the higher the willingness to pay a premium price for green products.

Hypothesis 9c: The higher the consumer green practices, the higher the frequency of green product purchase.

2.10. Functional value

Functional value is defined as *“the perceived utility acquired from an alternative’s capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes”* (Sheth et al., 1991, p. 160).

Several studies have shown that quality and performance are key aspects of functional value and are positively related to consumers’ satisfaction (Churchill and Surprenaut, 1982; Cronin et al., 2000; Oliver 1993; Sweeney et al., 1999; Tse and Wilton, 1988; Zeithaml et al., 1996).

Quality and performance are important predictors also of consumers' willingness-to-pay more. Several studies, in fact, found that those who perceive performance and quality to be high are willing to pay more for the expected benefits (Baker and Crompton, 2000; Dean et al., 2002; Homburg et al., 2005). In the green domain, Chang and Fong (2010) explored the relationships between green product quality and green customer satisfaction and loyalty (among the features of loyalty, tolerance for a higher price was included). They found that green product quality is positively associated with green customer satisfaction and loyalty. Consistently, Hur et al. (2013) highlighted that functional value of hybrid cars positively affects consumers' satisfaction.

Purchase intention and its reiteration over time are directly influenced by perceived quality and product performance (e.g., Parasuraman et al., 1997; Tsiotsou, 2006). In the green product domain, some studies have highlighted that perceived product quality is positively and significantly linked with green product purchase intention (Ali et al., 2011; Chen and Chang, 2012), so that a positive impact on the frequency of purchase can be expected. Goncalves et al. (2016) found that functional value (in which, however, the authors include both the quality and the price aspects of the product) is a necessary antecedent to green purchase behaviour.

Thus, we develop the following hypotheses:

Hypothesis 10a: The higher the functional value of green products, the higher the purchase satisfaction of green products.

Hypothesis 10b: The higher the functional value of green products, the higher the willingness to pay a premium price for green products.

Hypothesis 10c: The higher the functional value of green products, the higher the frequency of green product purchase.

2.11. Value-for-money

Value-for-money is measured by consumers' perception about the product performance in relation to its price (Biswas and Roy, 2015b). There are several studies demonstrating the positive link between

value-for-money and purchase satisfaction (Day and Crask, 2000; McDougall and Levesque, 2000; Parasuraman, 1997).

In the green product domain, value-for-money has been defined as “*the degree of fulfilment of consumer need by overall assessment of consumers’ perceived net utility from green product consumption based on their perception about the price concern of green products*” (Biswas and Roy, 2015a: p.333). Value-for-money has been highlighted as an important antecedent of green consumer behaviour (Bei and Simpson, 1995; Biswas and Roy, 2015b).

With regard to the willingness to pay a premium price, Loureiro and McCluskey (2000) showed that consumers are willing to pay a premium price for eco-labelled food products only when they have additional benefits compared to traditional products, i.e. when the value-for-money increases. Further, Tsay (2009) found that higher income Taiwanese consumers with high perceived value-for-money about green products are willing to pay a premium price for them.

Thus, we hypothesize that:

Hypothesis 11a: The higher the value-for-money of green products, the higher the purchase satisfaction of green products.

Hypothesis 11b: The higher the value-for-money of green products, the higher the willingness to pay a premium price for green products.

Hypothesis 11c: The higher the value-for-money of green products, the higher the frequency of green product purchase.

2.12. Theoretical model

The theoretical model deriving from the review of the literature and the development of the hypotheses is reported in Figure 1. The model shows on the right side the three dimensions of green purchase behaviour (willingness to pay a premium price, green purchase satisfaction, and green purchase frequency) and on the left side its antecedents. Further, since there is some evidence that green purchase satisfaction positively affects purchase intention (Gil and Jacob, 2018) and that the

price that consumers are willing to pay is in some cases correlated with the actual purchase frequency (Krishna, 1991), green purchase satisfaction and willingness to pay a premium price are also modelled as mediators of the link between antecedents and green purchase frequency. Finally, socio-demographic variables (age, gender, income, and education) are included in the model as controls.

< Figure 1 >

3. METHODOLOGY

3.1. Sample

Primary data to test our theoretical model were collected through a survey of Italian consumers. The total number of the participants was 1024, but 103 people stated that they did not know the terms “green products” or “products with low environmental impact”; for this reason we excluded them from the study. The final sample was made of 921 consumers and, based on their answers, a first qualitative analysis was conducted. Then, for the following regression analysis the sample was restricted to consumers who bought green products and had declared their income range (734 consumers).

3.2. Procedure

A questionnaire was developed to conduct the survey. To validate the questionnaire a pre-test was conducted on a sample of 15 consumers. The objective of this phase was to know if there were any difficulties to understand the questions in the survey. Only small changes were made after the pre-test. The questionnaire was distributed online, using social networks and e-mails. Data collection began in March 2016 and ended in May 2016. About 5 to 10 minutes were required to complete the questionnaire.

3.3. Measures

The questionnaire was developed based on a thorough analysis of the literature and consisted of different sections. First, respondents were asked whether they had ever heard about green products or low-environmental impact products. Then, only for people answering *yes*, the questionnaire continued with questions about the meaning of green products, the frequency of purchase of green products and the purchased product categories. For people answering *no*, the questionnaire ended.

The following constructs were measured with multi-item scales: green purchase satisfaction with four items (selected from Leonidou et al. (2010)), personal norms with two items (selected from Liobikiene et al. (2016)), social value with three items (selected from Lin and Huang, 2012), value-for-money with four items (Biswas and Roy, 2015b), functional value with two items (adapted from Manget et al., 2009), environmental concern with four items (Lee et al., 2014), green practices with five items (selected from Sharma and Gadenne, 2014), product unavailability with two items (selected from Gleim et al., 2013), scepticism towards eco-labels with four items (Tanner and Wolfing Kast, 2003), creativity with three items (Füller et al., 2012), materialism with four items (Valkeneers and Vanhooymissen, 2012), innovativeness with four items (Englis and Phillips, 2013).

Willingness to pay a premium price was measured through a question on the extent of the premium that respondents would be willing to pay for green products if they provide added benefits compared to conventional products (none, 5%, 5-10%, 10-20%, 20-30%, 30-40%, more than 40%) (adapted from Manget et al., 2009).

Seven-point Likert scales were used to assess the statements referred to each construct: from 1="Strongly inferior" to 7="Strongly superior" for functional value, from 1="Never" to 7="Every time" for frequency of purchase and green practices, from 1="Strongly disagree" to 7="Strongly agree" for the other constructs.

The last section included questions about socio-demographics characteristics of respondents: gender (a dummy variable codified as 1 for male and 0 for female), age (from 1="under 25" to 5="over 55"), education (from 1="lower secondary school" to 4="Master or PhD"), and monthly income (from 1=

“less than 1.000 €” to 4= “over 2.000 €”) (Barbarossa and De Pelsmacker, 2014; Pagiaslis and Krontalis, 2014).

4. RESULTS

4.1. Respondents' profile

Socio-demographics characteristics of respondents (gender, age, education, and income) are reported in Table 1.

< Table 1 >

4.2. Descriptive analysis

Respondents were asked to select one or more statements (selected from Manget et al., 2009) that reflected the meaning of green products. Results show that the most agreed definitions of green products relate to the reduced amount of pollution generated by products during their production or use (Table 2).

<Table 2>

Respondents were also asked how frequently they had purchased green products during the past year, and which categories of green products they bought. Results show that 41 respondents (about 4%) had not purchased green products over the previous year, whereas about 13% of consumers bought them rarely, 21% occasionally, 24% sometimes, 24% frequently, 11% usually, and 3% every time. As reported in Table 3, most frequently purchased green products belong to the categories of food or drinks (purchased by 69,8% of respondents), lighting (purchased by 64,4% of respondents), and paper products (purchased by 51,5% of respondents).

<Table 3>

Most respondents (more than 90%) declared to be willing to pay a premium price for green products and more than 65% of them declared to be willing to pay a premium higher than 10% (Table 4).

<Table 4>

4.3. The measures

In order to test constructs and conduct the regression analyses, the considered sample is made of respondents who declared to have bought green products and for which income was not a missing value (734 respondents).

A series of confirmatory factor analysis (CFA) (using principal component method) was conducted to test constructs and estimate the loadings of each item on the corresponding factor. Convergent validity of constructs was assessed with item loadings, scales' reliability and average variance extracted (AVE). All factor loadings are higher than 0.50, showing convergent validity among each construct's measures (Hair et al., 2006). For each construct, Cronbach's Alpha exceeds the recommended threshold value of 0.60 (Churchill and Surprenaut, 1982) and Composite Reliability (CR) is higher than the cut-off value of 0.70 (Fornell and Larcker, 1981). AVE exceeds the recommended value of .50 (except for *Green Practices*, for which, however, CR is higher than 0.60, so that its convergent validity can be considered acceptable) (Fornell and Larcker, 1981; Hair et al., 2006). All these values provide evidence of good convergent validity of constructs.

Table 5 reports items' factor loadings for each construct, Cronbach's α coefficient, average variance extracted and composite reliability.

<Table 5>

Table 6 reports the correlation matrix.

<Table 6>

4.4. Regression analysis

Regression analysis (ordinary least squares) was used to understand the effect of all the considered antecedents on the three dimensions of green purchase behaviour. Several socio-demographic

variables (age, gender, income, and education) were included in the analyses as controls. Results are reported in Table 7. Specifically, Model 1 and Model 2 refer to the level of purchase satisfaction: in Model 1 the effect of socio-demographic variables is analysed, while in Model 2 all the antecedents are added. Model 3 and Model 4 refer to the willingness to pay a premium price: in Model 3 the influence of socio-demographic variables is investigated, while in Model 4 all the antecedents are included. Model 5 and Model 6 refer to the frequency of purchase: in Model 5 the effect of the socio-demographic variables on the frequency of purchase is analysed, while in Model 6 all the antecedents are added.

Variance inflation factors (maximum value 2.280) show that there is no collinearity among explanatory variables (Hair et al., 2006).

With regard to the factors affecting purchase satisfaction, results (Model 2) show that environmental concern ($\beta = 0.068$, $p < 0.05$), personal norms ($\beta = 0.489$, $p < 0.01$), creativity ($\beta = 0.044$, $p < 0.10$), green practices ($\beta = 0.049$, $p < 0.10$), functional value ($\beta = 0.197$, $p < 0.01$), as well as value-for-money ($\beta = 0.218$, $p < 0.01$) have a positive and significant influence, while social value ($\beta = -0.089$, $p < 0.01$) and materialism ($\beta = -0.050$, $p < 0.10$) have negative effects. The effects of the other antecedents are not significant. Thus, hypotheses 1a, 3a, 6a, 8a, 9a, 10a, 11a are supported, while hypotheses 2a, 4a, 5a, 7a, are not supported. With regard to control variables, gender ($\beta = 0.061$, $p < 0.05$) and education ($\beta = 0.047$, $p < 0.10$) have a positive effect, while age ($\beta = -0.071$, $p < 0.05$) has a negative one, showing that male, more educated and younger people are more satisfied with their green purchases.

Personal norms ($\beta = 0.079$, $p < 0.10$), product unavailability ($\beta = 0.092$, $p < 0.05$), and value-for-money ($\beta = 0.224$, $p < 0.01$) positively affect the willingness to pay a premium price, while the other antecedents do not have any significant influence (Model 4). Thus, hypotheses 3b and 11b are supported, while hypotheses 1b, 2b, 4b, 5b, 6b, 7b, 8b, 9b, 10b are not supported. Among control variables, results show that gender ($\beta = 0.119$, $p < 0.01$) has a positive effect, showing that male

consumers are more willing to pay a premium for their green purchase compared to female consumers.

With regard to factors affecting the frequency of purchase, results (Model 6) show that personal norms ($\beta = 0.121, p < 0.01$), creativity ($\beta = 0.109, p < 0.01$), green practices ($\beta = 0.112, p < 0.01$), functional value ($\beta = 0.164, p < 0.01$), and value-for-money ($\beta = 0.088, p < 0.05$) have a positive and significant influence. Product unavailability ($\beta = -0.186, p < 0.01$) and materialism ($\beta = -0.079, p < 0.05$) negatively and significantly affect the frequency of purchase, while other antecedents do not display any significant effect. Thus, hypotheses 3c, 4c, 6c, 8c, 9c, 10c, 11c are supported, while hypotheses 1c, 2c, 5c, and 7c are not supported. In terms of control variables, age ($\beta = 0.095, p < 0.05$) and income ($\beta = 0.087, p < 0.05$) have a positive effect, showing that elder and richer people purchase green products more frequently.

We conducted a further analysis to test whether green purchase satisfaction or willingness to pay a premium price act as mediators in the relationship between the considered antecedents and the frequency of green purchase, following the Baron and Kenny's (1986) approach. Model 6 highlights the antecedents with a significant effect on the frequency of purchase. Model 2 and Model 4 show significant predictors of purchase satisfaction and willingness to pay a premium price. In Model 7 the effect of purchase satisfaction and willingness to pay a premium price on the frequency of purchase is analysed; results show that purchase satisfaction has a positive effect ($\beta = 0.363, p < 0.01$), while willingness to pay a premium price does not significantly affect the frequency of purchase (thus, it cannot act as a mediator). In Model 8, where purchase satisfaction is added to the variables of Model 6, the effects of personal norms and value-for-money on the frequency of purchase lose their significance, so highlighting that purchase satisfaction fully mediates the effects of personal norms and value-for-money on the frequency of purchase.

<Table 7>

In Table 8, results of hypothesis testing are summarized.

<Table 8>

5. DISCUSSION

This study results show that the strongest predictor of purchase satisfaction is represented by personal norms, while social value exerts a negative effect. This highlights that, when the purchase is driven by the consumer values, the purchase satisfaction is high as relates to the moral satisfaction deriving from the personal contribution to the protection of the natural environment (Kahneman and Knetsch, 1992; Nunes and Schokkaert, 2003; Ritov and Kahneman, 1997). On the contrary, the more the purchase is driven by social acceptance desire, the lower the satisfaction deriving from it. This result is in contrast with the study on hybrid cars by Hur et al. (2015) and this may depend on the specific category of product under investigation. In our study, green products are considered as a broad category; actually, as our survey highlights (Table 3), respondents buy green products belonging to a wide variety of goods. It can be expected that green products which use is “apparent”, as hybrid cars, can satisfy the need for social acceptance better than green products used in the home, as food, drink, lightning, paper products or household cleaning products (the most frequently purchased by our sample). Other important predictors of purchase satisfaction are value-for-money and functional value, consistently with past studies not focused on the green product domain (e.g., Day and Crask, 2000; Churchill and Surprenaut, 1982; McDougall and Levesque, 2000; Oliver 1993; Tse and Wilton, 1988) as well as with previous studies on green products (Chang and Fong; 2010; Hur et al., 2013). This means that product characteristics, other than its environmental impact, related to performance and price are key for green product success. Also environmental concern positively affects green purchase satisfaction, in accordance with the study by Okada et al. (2019). The positive influences of green practices and creativity represent new results as none of the reviewed studies analyzed the link of these aspects with green purchase satisfaction. The fact that people with green daily habits gain more satisfaction from the purchase of green products may be due to the fact that these products help them to strengthen their habits, allowing them to have an overall consistent green behaviour (White et al., 2019). The effect of creativity may be related to the fact that creative people seem to be more

environmentally-concerned (as suggested by the correlation matrix, Table 6), so they get more satisfaction from the green purchase.

The negative effect of materialism on purchase satisfaction is consistent with previous studies' results that highlighted a negative influence of materialism on green consumption behaviour (Alzubaidi et al., 2020; Kilbourne and Pickett, 2008). Actually, materialistic people are characterized by the desire of worldly possessions; this is often in contrast with protecting the natural environment, which may also require consuming less or sharing instead of owning. Further, materialistic people seem to be less environmentally-concerned (as suggested by the correlation matrix Table 6). This may explain why materialistic people are less satisfied by the purchase of green products. With regard to the effect of the socio-demographic variables, results show that younger, male, and more educated people get higher satisfaction from their green purchase.

The most important predictor of the willingness to pay a premium price, is value-for-money. This highlights that a good economic value of green products is an important predictor of the willingness to pay more for them, provided that they offer additional benefits. This result is consistent with previous studies (Loureiro and McCluskey, 2000; Tsay, 2009). Also the positive effect of personal norms on the propensity of consumers to pay more for green products was expected (Wiidegren, 1998). Further, the physical unavailability of green products has a positive effect on the willingness to pay. This may be due to the fact that the difficulties to find green products make consumers perceive them as exclusive products, thus increasing consumers' willingness to pay a premium. This is in accordance with the effects of the scarcity of a good on consumer behaviour (Hamilton et al., 2019; Roy and Sharma, 2015). Among socio-demographic variables, only gender has an effect in that male consumers seem to be more willing to pay a premium for green products, while, surprisingly, the income range does not exert any influence.

Purchase satisfaction is the most important predictor of the frequency of green purchase. This result is consistent with previous studies, not specifically focused on the green product domain, on the relationship between customer satisfaction and behavioural intention (e.g., Balabanis et al., 2006;

Jones and Reynolds, 2006; Kim and Lee, 2008). However, comparisons with studies focused on the green product domain cannot be done, since none of the reviewed studies analyzed the relationship between green purchase satisfaction and the frequency of green purchase. Purchase satisfaction also mediates the effects of personal norms and value-for-money. As expected, functional value and green practices also positively influence the purchase frequency, according with previous evidence (Magnusson et al., 2003; Testa et al., 2020), while product unavailability and materialism have a negative influence, consistently with previous studies (Gleim et al., 2013; Kilbourne and Pickett, 2008; Manget et al., 2009; Wiederhold and Martinez, 2018; Young et al., 2010). If the green products are not intensively distributed, consumers will have less opportunities to find and, consequently, to buy them.

With regard to materialism, the same considerations done for its effect on green purchase satisfaction also hold for frequency of purchase.

Consumer creativity also plays a positive effect on green purchase frequency; this is in accordance with our hypothesis and represents a novel result. This may be due to the fact that creative people are more apt to think out of the box compared to other people and this may reflect on a higher propensity to switch their habits from conventional products to green products purchase. Further, creativity can motivate and empower green practices (Cheng, 2018). Surprisingly, willingness to pay a premium price is not a predictor of the green purchase frequency and this is in contrast with previous evidence (Moser, 2015). With regard to socio-demographic variables, older and richer consumers buy green products more frequently, while it appears that there is not any significant difference between men and women, coherently with previous research by D'Souza et al. (2007) and Chen and Chai (2010). Considering the broader picture of green purchase behaviour as made of the three dimensions, personal norms and value-for-money emerged to be very relevant predictors, since they influence all the three dimensions: green purchase satisfaction and willingness to pay a premium price directly, frequency of purchase indirectly, through satisfaction. Functional value, green practices and creativity positively affect both green purchase satisfaction and green purchase frequency, so revealing to be

important determinants of green purchase behaviour, while materialism negatively affects these two dimensions. Product unavailability has a positive effect on the willingness to pay a premium price but a negative one on the frequency of purchase. Environmental concern and social value only affect purchase satisfaction, despite having opposite effects. On the contrary, consumer innovativeness does not influence any of the considered dimensions. This highlights that the consumer general tendency to adopt new products does not necessarily reflect on the consumer behaviour in a specific domain (i.e. sustainable products). This is consistent with previous research by Goldsmith et al. (1995), while it is in contrast with Alzubaidi et al. (2020), according to whom innovativeness has the greatest influence on pro-environmental behavioural intentions. A possible explanation of our result is that green products might not be perceived as radically new or highly technological products, so not particularly appealing to innovative consumers. This explanation would be consistent with Testa et al. (2020) that even found a negative effect of consumer innovativeness on the likelihood of purchase of circular packaging. Also scepticism towards eco-labels does not play a significant influence on any of the considered dimensions of green purchase behaviour (despite all coefficients in the regression analysis results have a negative sign, so suggesting a possible negative influence). A possible explanation is that the lack of trust towards eco-labels in the Italian market may not be so high to influence consumers' decision to buy green products.

6. IMPLICATIONS, LIMITATIONS, FUTURE RESEARCH DIRECTIONS, AND CONCLUSION

6.1. Implications for theory

Answering to the calls for research that sheds further light on the determinants of pro-environmental behaviours, by providing broader theoretical and behavioural explanations (Alzubaidi et al., 2020; Peattie, 2010), this study investigated the phenomenon of green purchase behaviour broadly. In particular, several antecedents and three different dimensions of it (green purchase satisfaction,

willingness to pay a premium price, and frequency of green purchase) have been investigated. Several theoretical implications can be derived from this study results.

First, the three dimensions of green purchase behaviour have different antecedents, so highlighting that green consumption behaviour is a multi-faceted phenomenon and that considering/studying it as a single concept can be misleading.

Second, through the inclusion of a wide number of antecedents, this study also sheds light on the effect of factors that had not been (or been marginally) considered before and, thus, on the relevance of including them to extend the TPB model. The significant effects of creativity, materialism, and green practices provide evidence that extending the TPB model with these three dimensions is useful to more deeply understand green purchase behaviour. The results on materialism confirm a previous study results (Alzubaidi et al., 2020) on the relevance of extending the TPB model with this construct. On the contrary, the non-significant effect of innovativeness questions the usefulness of including this construct in the extended model, answering to the call by Alzubaidi et al. (2020) to focus on its role. The positive influences of green practices and creativity on green purchase satisfaction as well as the positive effect of creativity on green purchase frequency represent new results as none of the reviewed studies analysed these links.

Third, this study showed the mediating effect of green purchase satisfaction in the links between personal norms and green purchase frequency as well as between value-for-money and green purchase frequency. This highlights the relevance of considering purchase satisfaction when studying green purchase behaviour, despite the limited attention received by previous studies (exceptions include Gil and Jacob, 2018; Hur et al., 2013).

6.2. Implications for practice

Several implications for practice derive from our study results.

Different types of green products do exist in the market (Dangelico and Pontrandolfo, 2010). Our survey highlighted which are the meanings associated with green or environmentally-friendly

products by Italian consumers, showing that most of them associate green products to the idea of pollution reduction. This result has important implications from the green marketing point of view (Dangelico and Vocalelli, 2017), as it can be a starting point for marketers as well as policy makers to develop suitable marketing campaigns, to effectively communicate to a broad audience the wide variety of ways in which products can be green and to highlight the relevant role of environmental certifications to recognize them. Further, the high percentage of consumers declaring to be willing to pay more for green products highlights that the market for green products is growing and represents a great opportunity for companies.

The relevance of green purchase satisfaction to increase the green purchase frequency highlights how important it is for marketers to develop green products that satisfy consumers' needs and expectations. Specifically, the positive roles of functional value and value-for-money in driving green purchase behaviour, highlight that product characteristics, related to quality, performance and price, are key for green product success. Thus, marketers should avoid green marketing myopia mistakes (Ottman et al., 2006) by including product environmental attributes as additional benefits and carefully integrating them with other attributes. This will lead to satisfy consumer expectations, so making green products successful. Further, a critical role is played by companies' distribution choices, since product unavailability discourages green purchase, despite driving higher consumers' willingness to pay more. Companies should improve the distribution of green products, making them more and more extensively available, but at the same time try to make these products perceived as exclusive through other tools, such as advertisement or packaging.

6.3. Limitations

This study has some limitations that should be acknowledged. Green purchase behaviour has been investigated among a sample of Italian consumers; this limits the generalizability of results, since cultural factors may influence environmental behaviours (Dangelico et al., 2020). Further, some variables that could influence the willingness to pay a premium price or the purchase frequency, such as those related to brand or store (Anselmsson et al., 2014; Testa et al., 2015), have not been included.

Finally, we have considered green products as a general category. However, different behavioural patterns could emerge based on the specific types of green products (e.g., Magnusson et al., 2003; Testa et al. 2015).

6.4. Future research directions

To the best of our knowledge, the role of individual creativity in the green purchase (and general pro-environmental) behaviour has not been investigated in the literature so far. Our study suggests that this aspect deserves further attention that could be aimed at understanding why and how individual creativity can foster an environmentally-friendly behaviour. Further, considering the contrasting results on the effect of consumer innovativeness on green purchase behaviour (non-significant in this study, significant and negative in Testa et al., (2020), significant and positive in Alzubaidi et al., (2020)), future studies should be devoted to deepen the understanding on the role of this construct. Finally, cross-country studies are strongly encouraged to compare green consumer behaviour across different geographical areas.

6.5. Conclusion

We hope that this study results will encourage further investigation and discussion within the academic community on the complex phenomenon of green purchase behaviour, with the aim to deeply understand it. This is an essential condition to make green products successful in the market, thus contributing to the diffusion of sustainable production and consumption models and, in turn, to the achievement of the sustainable development goals.

ACKNOWLEDGMENTS: The authors gratefully acknowledge G. Camilotto for his support in data collection.

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TABLES

Table 1: Socio-demographic characteristics of respondents (N=921).

| | <i>Frequency</i> | <i>Percentage</i> |
|------------------------|------------------|-------------------|
| <i>Gender</i> | | |
| Male | 381 | 41.37 % |
| Female | 540 | 58.63 % |
| <i>Age</i> | | |
| Under 25 | 180 | 19.50 % |
| 25 – 34 | 307 | 33.33 % |
| 35 – 44 | 203 | 22.04 % |
| 45 – 55 | 151 | 16.40 % |
| Over 55 | 80 | 8.67 % |
| <i>Education</i> | | |
| Lower secondary school | 46 | 4.99 % |
| Upper secondary school | 351 | 38.11 % |
| Laurea degree | 422 | 45.81 % |
| Master or PhD | 102 | 11.07 % |
| <i>Monthly income</i> | | |
| Less than 1.000 € | 259 | 28.12 % |
| 1.000 – 1.500 € | 225 | 24.43 % |
| 1.500 – 2.000 € | 176 | 19.11 % |
| Over 2.000 € | 105 | 11.40 % |
| Missing | 156 | 16.94 % |

Table 2: Meaning of green products.

| <i>Please, select the statement or statements that, in your opinion, best describe(s) green products.</i> | Frequency | % |
|---|------------------|----------|
| Products that generate less pollution during their production or use | 771 | 83,71 |
| Products that generate less CO ₂ emissions during production or use | 421 | 45,71 |
| “Zero miles” products or organic food | 384 | 41,69 |
| Products that can be recycled or reused | 336 | 36,48 |
| Products that are certified as green | 334 | 36,26 |
| Products that have a low environmental impact packaging | 282 | 30,61 |
| Products that are made of recycled materials | 249 | 27,03 |
| Products that are made of natural materials | 231 | 25,08 |
| Products that are not tested on animals | 152 | 16,50 |

Table 3: Purchased categories of green products.

| Product category | Frequency | % |
|--|-----------|------|
| Food or drinks (organic or zero miles) | 644 | 69,8 |
| Lighting (low-energy light bulbs, led and ceiling lights) | 594 | 64,4 |
| Paper products (such as paper towels, toilet paper, notebooks) | 475 | 51,5 |
| Household cleaning products | 356 | 38,6 |
| Health and beauty products | 320 | 34,7 |
| Energy-efficient electronics and appliances | 247 | 26,8 |
| Other | 54 | 5,9 |
| Toys and games | 26 | 2,8 |
| Home furnishing | 22 | 2,4 |

Table 4: Willingness to pay a premium price for green products.

| | Frequency | % |
|--------------------------------|------------|------------|
| Not willing to pay more | 81 | 8,79 |
| Willing to pay 5% more | 100 | 10,85 |
| Willing to pay 5% to 10% more | 141 | 15,30 |
| Willing to pay 10% to 20% more | 218 | 23,67 |
| Willing to pay 20% to 30% more | 208 | 22,58 |
| Willing to pay 30% to 40% more | 107 | 11,61 |
| Willing to pay more than 40% | 66 | 7,16 |
| Total | 921 | 100 |

Table 5: Factor loadings, Cronbach's Alpha, Average Variance Extracted (AVE), Composite Reliability (CR).

| | Factor loading | Cronbach's Alpha | AVE | CR |
|--|----------------|------------------|-------|-------|
| Environmental concern | | 0.751 | 0.597 | 0.855 |
| If things continue on their present course, we will soon experience a major ecological catastrophe | 0.786 | | | |
| The balance of nature is very delicate and easily upset | 0.817 | | | |
| Despite our special abilities, humans are still subject to the laws of nature | 0.677 | | | |
| Humans are severely abusing the environment | 0.804 | | | |
| Social value | | 0.858 | 0.779 | 0.913 |
| Buying the green product would improve the way that I am perceived | 0.882 | | | |
| Buying the green product would make a good impression on other people | 0.926 | | | |
| Buying the green product would help me to feel acceptable | 0.838 | | | |
| Personal norms | | 0.714 | 0.792 | 0.884 |
| I feel that using green products is "the right thing to do" | 0.890 | | | |
| Buying green products sets a good example | 0.890 | | | |

| | | | | |
|---|-------|-------|-------|-------|
| Product unavailability | | 0.797 | 0.832 | 0.908 |
| Sometimes I honestly do not know where green products can be found/sold | 0.912 | | | |
| Green products are not readily available at all the common stores I shop at | 0.912 | | | |
| Scepticism towards eco-labels | | 0.814 | 0.652 | 0.881 |
| In the store, I cannot distinguish between environmentally-friendly and harmful products | 0.659 | | | |
| I am insecure about which eco-labels are reliable and which are not | 0.813 | | | |
| Eco-labels lack credibility | 0.881 | | | |
| I do not believe in the quality guarantee of eco-labels | 0.859 | | | |
| Materialism | | 0.904 | 0.777 | 0.933 |
| Money makes people happy | 0.860 | | | |
| It is important to earn as much money as possible | 0.909 | | | |
| It is important to have a lot of money | 0.928 | | | |
| It is important to own a lot of property | 0.826 | | | |
| Innovativeness | | 0.866 | 0.714 | 0.909 |
| I am eager to buy new products as soon as they come out | 0.838 | | | |
| I relish the gamble involved in buying new products | 0.879 | | | |
| Others often ask me for advice about new products | 0.784 | | | |
| I enjoy the novelty of owning new products | 0.876 | | | |
| Creativity | | 0.896 | 0.830 | 0.936 |
| I am an inventive kind of person | 0.885 | | | |
| I consider myself to be creative and original in my thinking and behaviour | 0.938 | | | |
| I have original ideas | 0.910 | | | |
| Green practices | | 0.627 | 0.409 | 0.774 |
| I recycle plastic, paper and glass | 0.565 | | | |
| I turn the tap off when cleaning my teeth | 0.705 | | | |
| I keep heating/air conditioning low to save energy | 0.702 | | | |
| I turn lights off in unused rooms | 0.651 | | | |
| I use my own bag when shopping | 0.560 | | | |
| Functional value | | 0.790 | 0.826 | 0.905 |
| Please rate green products' quality compared to conventional products' one | 0.909 | | | |
| Please rate green products' performance (design, taste, functionality, etc.) compared to conventional products' one | 0.909 | | | |
| Value-for-money | | 0.897 | 0.765 | 0.928 |
| Green products are good products for the price | 0.861 | | | |
| Green products have a good economic value | 0.871 | | | |
| Green products are reasonably priced | 0.896 | | | |
| Green products offer value for money | 0.869 | | | |
| Purchase satisfaction | | 0.888 | 0.756 | 0.925 |
| I think I did the right thing by deciding to buy green products | 0.889 | | | |
| I am satisfied with my decision to buy green products | 0.904 | | | |
| My general experience with green products is high | 0.879 | | | |
| Green products match my expectations regarding the ideal product | 0.803 | | | |

Table 6: Correlation matrix.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|
| 1. Environmental concern | 1 | | | | | | | | | | | | | |
| 2. Social value | 0.093** | 1 | | | | | | | | | | | | |
| 3. Personal norms | 0.412*** | 0.232*** | 1 | | | | | | | | | | | |
| 4. Product unavailability | 0.059 | 0.114*** | 0.051 | 1 | | | | | | | | | | |
| 5. Scepticism towards eco-labels | -0.007 | 0.116*** | -0.061 | 0.482*** | 1 | | | | | | | | | |
| 6. Materialism | -0.095*** | 0.219*** | -0.106*** | 0.171*** | 0.127*** | 1 | | | | | | | | |
| 7. Innovativeness | -0.076** | 0.216*** | 0.078** | 0.137*** | 0.041 | 0.322*** | 1 | | | | | | | |
| 8. Creativity | 0.155*** | 0.157*** | 0.137*** | 0.032 | 0.009 | 0.079** | 0.119*** | 1 | | | | | | |
| 9. Green practices | 0.192*** | 0.028 | 0.217*** | -0.130*** | -0.105*** | -0.266*** | -0.153*** | 0.079** | 1 | | | | | |
| 10. Functional value | 0.271*** | 0.096*** | 0.323*** | -0.127*** | -0.170*** | -0.159*** | -0.015 | 0.152*** | 0.159*** | 1 | | | | |
| 11. Value-for-money | 0.180*** | 0.201*** | 0.321*** | -0.074** | -0.166*** | -0.045 | 0.035 | 0.108*** | 0.137*** | 0.362*** | 1 | | | |
| 12. Purchase satisfaction | 0.355*** | 0.084** | 0.645*** | -0.078** | -0.151*** | -0.172*** | 0.017 | 0.158*** | 0.239*** | 0.469*** | 0.460*** | 1 | | |
| 13. Willingness to pay premium price | 0.118*** | 0.096*** | 0.184*** | 0.072* | -0.023 | -0.008 | 0.052 | 0.038 | 0.046 | 0.121*** | 0.268*** | 0.159*** | 1 | |
| 14. Frequency of purchase | 0.134*** | 0.042 | 0.242*** | -0.270*** | -0.197*** | -0.218*** | -0.093** | 0.137*** | 0.276*** | 0.326*** | 0.251*** | 0.376*** | 0.094** | 1 |
| 15. Age | 0.024 | 0.081** | 0.048 | -0.067* | 0.061* | -0.204*** | -0.118*** | -0.052 | 0.248*** | 0.041 | 0.081** | 0.014 | 0.004 | 0.199*** |
| 16. Gender | -0.130*** | 0.107*** | -0.011 | 0.019 | 0.084** | 0.055 | 0.157*** | -0.007 | 0.017 | -0.064* | 0.042 | 0.025 | 0.114*** | -0.020 |
| 17. Income | -0.112*** | 0.055 | 0.005 | -0.056 | 0.083** | -0.078** | 0.036 | -0.106*** | 0.142*** | 0.087** | 0.086** | 0.052 | 0.033 | 0.165*** |
| 18. Education | -0.059 | -0.119*** | -0.043 | -0.007 | -0.052 | -0.044 | -0.064* | -0.039 | 0.051 | 0.000 | 0.019 | 0.045 | 0.041 | 0.042 |

*p<0.10; **p<0.05; ***p<0.010. Pearson correlation, two-tailed.

Table 7: Results of regression analyses (N=734).

| <i>Independent variables</i> | <i>Purchase satisfaction</i> | | <i>Willingness to pay a premium price</i> | | <i>Frequency of purchase</i> | | | |
|---|------------------------------|----------------|---|----------------|------------------------------|----------------|----------------|----------------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
| <i>Control variables</i> | | | | | | | | |
| Age | -0.006 | -0.071** | -0.012 | -0.028 | 0.167*** | 0.095** | 0.170*** | 0.111*** |
| Education | 0.043 | 0.047* | 0.049 | 0.051 | 0.050 | 0.039 | 0.033 | 0.029 |
| Gender | 0.016 | 0.061** | 0.119*** | 0.119*** | -0.071* | -0.035 | -0.082** | -0.048 |
| Income | 0.048 | 0.033 | 0.003 | -0.001 | 0.103** | 0.087** | 0.085** | 0.080** |
| <i>Antecedents</i> | | | | | | | | |
| Environmental concern | | 0.068** | | 0.056 | | -0.010 | | -0.025 |
| Social value | | -0.089*** | | 0.016 | | 0.007 | | 0.027 |
| Personal norms | | 0.489*** | | 0.079* | | 0.121*** | | 0.013 |
| Product unavailability | | -0.041 | | 0.092** | | -0.186*** | | -0.177*** |
| Scepticism towards eco-labels | | -0.011 | | -0.030 | | -0.044 | | -0.042 |
| Materialism | | -0.050* | | -0.012 | | -0.079** | | -0.068** |
| Innovativeness | | 0.007 | | 0.014 | | -0.032 | | -0.034 |
| Creativity | | 0.044* | | -0.012 | | 0.109*** | | 0.099*** |
| Green practices | | 0.049* | | 0.004 | | 0.112*** | | 0.102*** |
| Functional value | | 0.197*** | | 0.014 | | 0.164*** | | 0.121*** |
| Value-for-money | | 0.218*** | | 0.224*** | | 0.088** | | 0.039 |
| <i>Purchase satisfaction</i> | | | | | | | 0.363*** | 0.223*** |
| <i>Willingness to pay a premium price</i> | | | | | | | 0.041 | |
| F | 0.865 | 61.110*** | 2.882** | 5.764*** | 10.332*** | 17.233*** | 28.599*** | 17.991*** |
| R ² | 0.005 | 0.561 | 0.016 | 0.107 | 0.054 | 0.265 | 0.191 | 0.286 |
| Adj R ² | -0.001 | 0.552 | 0.010 | 0.089 | 0.048 | 0.249 | 0.184 | 0.271 |

p<0.01 *** p<0.05** p<0.10*

Table 8: Summary of hypothesis testing results.

| ANTECEDENTS | HYPOTHESES | RESULTS |
|----------------------|---|----------------|
| ENVIROMENTAL CONCERN | Hypothesis 1a: The higher the environmental concern, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 1b: The higher the environmental concern, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 1c: The higher the environmental concern, the higher the frequency of green product purchase. | Not supported |
| SOCIAL VALUE | Hypothesis 2a: The higher the social value, the higher the green purchase satisfaction. | Not supported |
| | Hypothesis 2b: The higher the social value, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 2c: The higher the social value, the higher the frequency of green product purchase. | Not supported |
| PERSONAL NORMS | Hypothesis 3a: The higher the personal norms, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 3b: The higher the personal norms, the higher the willingness to pay a premium price for green products. | Supported |

| | | |
|-------------------------------|--|---------------|
| | Hypothesis 3c: The higher the personal norms, the higher the frequency of green product purchase. | Supported |
| PHYSICAL UNAVAILABILITY | Hypothesis 4a: The higher the physical unavailability of green products, the lower the purchase satisfaction of green products. | Not supported |
| | Hypothesis 4b: The higher the physical unavailability of green products, the lower the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 4c: The higher the physical unavailability of green products, the lower the frequency of green product purchase. | Supported |
| SCEPTICISM TOWARDS ECO-LABELS | Hypothesis 5a: The higher the scepticism towards eco-labels, the lower the purchase satisfaction of green products. | Not supported |
| | Hypothesis 5b: The higher the scepticism towards eco-labels, the lower the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 5c: The higher the scepticism towards eco-labels, the lower the frequency of green product purchase. | Not supported |
| MATERIALISM | Hypothesis 6a: The higher the materialism, the lower the purchase satisfaction of green products. | Supported |
| | Hypothesis 6b: The higher the materialism, the lower the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 6c: The higher the materialism, the lower the frequency of green product purchase. | Supported |
| INNOVATIVENESS | Hypothesis 7a: The higher the consumer innovativeness, the higher the purchase satisfaction of green products. | Not supported |
| | Hypothesis 7b: The higher the consumer innovativeness, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 7c: The higher the consumer innovativeness, the higher the frequency of green product purchase. | Not supported |
| CREATIVITY | Hypothesis 8a: The higher the consumer creativity, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 8b: The higher the consumer creativity, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 8c: The higher consumer creativity, the higher the frequency of green product purchase. | Supported |
| GREEN PRACTICES | Hypothesis 9a: The higher the consumer green practices, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 9b: The higher the consumer green practices, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 9c: The higher the consumer green practices, the higher the frequency of green product purchase. | Supported |
| FUNCTIONAL VALUE | Hypothesis 10a: The higher the functional value of green products, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 10b: The higher the functional value of green products, the higher the willingness to pay a premium price for green products. | Not supported |
| | Hypothesis 10c: The higher the functional value of green products, the higher the frequency of green product purchase. | Supported |
| VALUE-FOR-MONEY | Hypothesis 11a: The higher the value-for-money of green products, the higher the purchase satisfaction of green products. | Supported |
| | Hypothesis 11b: The higher the value-for-money of green products, the higher the willingness to pay a premium price for green products. | Supported |
| | Hypothesis 11c: The higher the value-for-money of green products, the higher the frequency of green product purchase. | Supported |

Figure 1: Theoretical model of green purchase behaviour.

