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Positive and negative antecedents of purchasing eco-friendly products: A comparison between green and non-green consumers

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Abstract

This study aims to analyze what drives and prevents the purchasing of eco-friendly products across different consumer groups and develops a conceptual model embracing the positive altruistic (care for the environmental consequences of purchasing), positive ego-centric (green self-identity and moral obligation), and negative ego-centric (perceived personal inconvenience of purchasing eco-friendly products) antecedents of eco-friendly product purchase intention and behavior.

We empirically validate the conceptual model for green (n=453) and non-green (n=473) consumers (i.e., consumers who engage in a set of pro-environmental behaviors for environmental reasons vs. consumers who do not engage in these behaviors). Data are analyzed using structural equation modeling and multi-group analysis of the two groups.

The results confirm the relevance of the determining factors in the model and show significant differences in eco-friendly product purchasing patterns between green and non-green consumers. Altruistic motives are more important for green than for non-green consumers. Negative ego-centric motives affect the purchase intentions of non-green consumers more than the intentions of green consumers, whereas the impact of negative motives on behavior is stronger for green than for non-green consumers.

The first contribution of this paper is the development and testing of a parsimonious model of eco-friendly products purchasing that embraces both positive (altruistic and ego-centric) and negative (ego-centric) antecedents, which have been theoretically suggested in the past but have rarely been empirically tested together. The second contribution of this study is that it develops insight into the specific antecedents of eco-friendly products purchasing for green and non-green consumers to assess potential similarities and differences in eco-friendly products purchasing process, the hypothesized antecedents, their impact on eco-friendly products purchase intention and behavior, and the intention-behavior relation.

Keywords

Eco-friendly products consumption, environment, self-identity, moral obligation, intention-behavior gap, spillover effect, structural equation model, multi-group analysis

Introduction

In recent years, international environmental policy debates have increasingly identified household consumption in industrial countries as one of the main causes of environmental problems (UNEP, 2010) or even as 'the mother of all environmental issues' (EEA, 2012).

Individual and household consumption behavior has a substantial impact on the environment (European Commission, 2012b). In most countries, household consumption over the lifecycle of products accounts for more than 60% of all environmental impacts of consumption (UNEP, 2010). World population growth and resource use increase faster than the population and make the disconnection of economic growth from environmental degradation even more urgent (SERI, 2009).

In this context, the role of purchasing eco-friendly products (EFP) to reduce consumers' environmental footprint has recently been addressed (Griskevicius *et al.*, 2012), especially for products that are purchased on a regular basis, such as eco-friendly tissue paper products, biodegradable detergents, and energy-saving light bulbs (EU, 2011b). Consequently, policy makers, marketers, and organizations have developed policies (e.g., EU's Action Plan), marketing campaigns (e.g., Diesel Clothing's 'Global Warming Ready', Procter & Gamble's Tide Coldwater, or Timberland's 'Earthkeepers'), and pro-environmental behavior campaigns (e.g., Greenpeace, the Green Party, and WWF's 'Don't Flush Tiger Forests') to promote the purchasing of EFP among consumers. However, despite the efforts mentioned above and consumers' increased concerns about environmental issues [1], the current market shares of EFP are still fairly low (approximately 1%-6% – Nielsen, 2011).

To enhance the effectiveness of policies and marketing campaigns and to stimulate the diffusion of EFP in the market, policy makers and marketers now call for further research

into the decisional process that leads consumers to purchase EFP (Prothero *et al.*, 2011), specifically:

1. to develop further insight into the motivational antecedents of purchasing EFP; and
2. to analyze whether the decisional process of purchasing EFP varies across different consumer segments.

With respect to the first aspect, organizations such as the European Commission (2012b) and UNEP (2010) call for further investigation on *i*) the most relevant positive and negative antecedents that, respectively, drive and prevent consumers from purchasing EFP; *ii*) the extent to which positive and negative antecedents influence individuals' EFP purchase intention and behavior; and *iii*) the extent to which EFP purchase intention and behavior correlate. This knowledge is essential to appeal to the most relevant motivational drivers of EFP consumption when developing policies and marketing campaigns (Lindridge *et al.*, 2013).

With respect to the second aspect, organizations such as DEFRA (2008) and Deloitte (2012) have pinpointed the need to analyze whether the motivational process of purchasing EFP may vary across specific consumer segments, such as consumers who already engage in pro-environmental behaviors for environmental reasons ('green' consumers) vs. consumers who do not engage in such behaviors ('non-green' consumers). This knowledge is essential to develop more effective policies and marketing strategies tailored for each consumer group. Indeed, 'combinations of different contents and tools should be applied to different population segments that vary according to environmental awareness and commitment, such as 'deep greens' versus those who are honestly unengaged in green behaviors' (European Commission, 2012a, p. 5).

The present study addresses these research questions. The purpose of the study is twofold. First, it aims to develop insights into the motivational process leading to the purchase of EFP.

Building upon and integrating two separate streams of research, the Social Dilemma Theory (Messick and Brewer, 1983) and the Psychological Egoism Theory (Steenhaut and van Kenhove, 2006), we develop a conceptual model that embraces both positive (altruistic and ego-centric) and negative (ego-centric) antecedents of EFP purchase intention and behavior to determine what drives and prevents consumers from purchasing EFP.

Second, this study aims to compare the EFP purchasing processes of green and non-green consumers to determine whether there are significant differences between these two consumer groups in the motivational process of EFP purchasing. The notion of ‘spillover effects’ (Thøgersen and Ölander, 2003) provides the theoretical basis for the definition of the green and non-green consumers adopted in this study. Green consumers are defined as those individuals who engage in a set of pro-environmental behaviors (e.g., recycling, reducing household waste) primarily for environmental reasons, while non-green consumers are defined as those individuals who do not engage in a set of pro-environmental behaviors. Accordingly, we propose that being involved in a set of pro-environmental behaviors for environmental reasons vs. not being involved in these behaviors may lead to significant differences in consumers' willingness to engage in EFP purchasing, in the effect that the positive (altruistic and ego-centric) and the negative (ego-centric) antecedents exert on EFP purchase intention and behavior, and in the EFP purchase intention-behavior relationship (Koestner *et al.*, 2001; Thøgersen and Ölander, 2002; Dono *et al.*, 2010).

In pursuing these research aims, the present study makes two important contributions. First, despite the fact that many models of EFP purchasing behavior have been developed and tested, the vast majority have focused on altruistic motivations. Only recently scholars have emphasized how purchasing EFP can be determined by more ego-centric antecedents (Bamberg and Möser, 2007). Nevertheless, conceptual models including both positive (altruistic and ego-centric) and negative (ego-centric) motivations are still lacking. The first

contribution of this study is the conceptualization and empirical validation of a parsimonious model that integrates both positive (altruistic and ego-centric) and negative (ego-centric) antecedents of EFP purchasing, which have been theoretically suggested in the past but have rarely been empirically tested together in a comprehensive model.

Second, no previous research has explicitly made a distinction between consumer groups in terms of their current pro-environmental behaviors and of the reasons for engaging in these behaviors (see Moons and De Pelsmacker, 2012, as an exception). This distinction is important: green consumers may have a fundamentally different EFP purchasing process and may be driven or constrained by different factors than non-green consumers, and the intention-behavior relationship may differ across the two consumer groups. The second contribution of the study is that, for the first time, it explicitly compares the EFP purchasing process of two relevant market segments, green and non-green consumers.

In light of this twofold research aim, we present an empirical study on the antecedents of purchasing EFP (i.e., eco-friendly tissue paper products) for green (n=453) and non-green (n=473) consumers in Italy. The data are analyzed using structural equation modeling and multi-group analysis. Implications for marketers and policy makers are addressed.

2. Theoretical Framework and Hypotheses

2.1 Antecedents of Purchasing Eco-Friendly Products

The first objective of this study is to build and test a parsimonious model of positive and negative antecedents of purchasing EFP.

Consistent with the ‘individual gain or common good’ dilemma, research applying the Social Dilemma Theory to pro-environmental behaviors widely recognizes altruistic drivers (i.e., care for the environmental consequences of purchasing) as the dominant, if not unique, positive antecedents of EFP purchasing (Gupta and Ogden, 2009). This theory also recognizes the possible negative individual consequences of pro-environmental consumption because consumers may bear individual loss when engaging in EFP purchasing (i.e., perceived personal inconvenience of purchasing EFP – Follows and Jobber, 2000). However, the Social Dilemma Theory mostly neglects how consumers may derive personal benefits from purchasing green goods.

In contrast, research applying the Psychological Egoism Theory to pro-environmental behaviors proposes that altruism implies obtaining personal pleasure from helping behavior. Thus, it recognizes ego-centric motives (positive self-interest) as the dominant antecedents of purchasing EFP (Steenhaut and van Kenhove, 2006). Consumers are assumed to purchase EFP because of a strong self-interest in perceiving themselves as green consumers (green self-identity – Freestone and McGoldrick, 2008) and to avoid feeling guilty by obeying moral obligations (moral obligation – Steenhaut and van Kenhove, 2006).

The altruistic and ego-centric antecedents of purchasing EFP have generally been analyzed separately in the context of either the Social Dilemma Theory or Psychological Egoism Theory, but their joint effects on EFP purchase intention and behavior have rarely been analyzed together in comprehensive conceptual models (Moisander, 2007). Recently, scholars have argued in support of the multiple determination of EFP consumption (Bamberg and Möser, 2007) and have emphasized that purchasing EFP should be viewed as the result of a concurrent mixture of positive (altruistic and ego-centric) and negative (ego-centric) antecedents (White and Peloza, 2009).

In view of these considerations, we propose a theoretical model that combines altruistic and ego-centric antecedents of purchasing EFP. From the Social Dilemma Theory, we adopt the trade-off between positive altruistic and negative ego-centric antecedents of purchasing EFP. From the Psychological Egoism Theory, we consider positive ego-centric motives as additional antecedents of purchasing EFP. We argue that an individual's decision to purchase EFP can be seen as the result of two opposite evaluations. On the one hand, positive antecedents, both altruistic (i.e., care for the environmental consequences of purchasing) and ego-centric (i.e., green self-identity and moral obligation), exert a positive impact on consumers' intention and EFP purchase behavior. On the other hand, negative ego-centric antecedents (i.e., perceived personal inconvenience of purchasing EFP) exert a negative impact on consumers' intention and EFP purchase behavior (Figure 1).

[Insert Figure 1 about here]

Care for the Environmental Consequences of Purchasing (EC)

Consumers may purchase products based on the extent to which they care for the way the consumption of these products affects the natural environment (Follows and Jobber, 2000). Adopting a hierarchical model of value-attitude-behavior, prior research (Thøgersen and Ölander, 2002) has established that values belonging to the 'universalism' value type (a broader concern for all people and nature), such as 'protecting the environment' and 'unity with nature' (Schwartz, 1992), are significant antecedents of care for the environmental consequences of purchasing. These values have a direct impact on consumers' EFP purchase intention (Freestone and McGoldrick, 2008) and actual purchase behavior (Bamberg 2003; Kilbourne and Pickett, 2008). The more consumers care about environmental degradation, the more importance they will place on the environmental consequences of consuming specific

products, and the more likely they will be to purchase products that are less damaging to the environment (Kilbourne and Pickett, 2008). Hence, we hypothesize the following:

H₁: Care for the environmental consequences of purchasing has a positive effect on the intention to purchase EFP (**H_{1a}**) and the purchase of EFP (**H_{1b}**).

Green Self-Identity (GSI)

Self-identity (or personal identity), ‘how the individual perceives himself’ (Grubb and Grathwohl, 1967, p. 24), may be a positive motive for consumers to purchase EFP.

Whitmarsh and O’Neill (2010) recognize two levels at which self-identity may operate in the context of pro-environmental behaviors: ‘generic’ and ‘behavior-specific’. ‘Generic’ green self-identity refers to an individual’s overall self-perception based on his or her mental identification with the typical green consumer (Sparks and Shepherd, 1992). ‘Behavior-specific’ green self-identity refers to an individual’s self-perception based on potential engagement in specific eco-friendly behaviors, such as purchasing EFP (Mannetti *et al.*, 2004). EFP may be a relevant way to satisfy consumers’ self-definitional needs (self-verification – Stets and Burke, 2000) and enhance personal satisfaction (Bhattacharya and Sen, 2003). Various studies have highlighted the identity-intention/behavior link in relation to pro-environmental actions. For example, Sparks and Shepherd (1992) and Sparks *et al.* (1995) found that people who identify themselves as ‘green consumers’ buy organic food to a greater extent than those who do not. Similarly, Mannetti *et al.* (2004) found that people who see themselves as typical recyclers are more likely to recycle than those who do not. Hence, we hypothesize the following:

H₂: Green self-identity has a positive effect on the intention to purchase EFP (**H_{2a}**) and the purchase of EFP (**H_{2b}**).

Moral Obligation (MO)

Moral obligation can be defined as ‘a personal internal state construct (that) is concerned with the extent to which an individual feels a sense of responsibility to act morally when faced with an ethical situation’ (Haines *et al.*, 2008, p. 390). Within the domain of green consumerism, Koestner *et al.* (2001) argue that behavioral choices are based on evaluations about what is right or wrong. A consumer may adhere to specific eco-friendly principles because it is the right thing to do, and the violation of these principles is intrinsically wrong. The consciousness of not behaving in the right way (i.e., purchasing products that substantially damage the environment) may lead consumers to feeling guilty, in an aroused form of emotional distress, and may trigger negative anticipated emotions (Steenhaut and Van Kenhove, 2006). Therefore, the purchase of EFP can be considered an ego-centric motivation to relieve one’s own distress and prime positive emotions (Haines *et al.*, 2008). Measures of moral obligation have been found to significantly predict intention and behaviors involving moral dimensions, such as purchasing ethical products (Peloza *et al.*, 2013; Shaw and Shiu, 2003; Sparks and Shepherd, 2002). Hence, we hypothesize the following:

H₃: Moral obligation has a positive effect on the intention to purchase EFP (**H_{3a}**) and the purchase of EFP (**H_{3b}**).

Perceived personal inconvenience of purchasing EFP (PPI)

Perceived personal inconvenience of purchasing EFP can be defined as a consumer’s evaluation of (and aversion to) bearing ‘personal efforts’ (Follows and Jobber, 2000, p. 727) when purchasing EFP. Gupta and Ogden (2009) affirm that consumers perceive EFP purchasing as a time consuming, economically disadvantageous, and stressful activity, because consumers have to spend extra money, time and cognitive resources when engaging in green consumption. Bray *et al.* (2011) and Gleim *et al.* (2013) identify consumers’

perceptions of the lack of availability, narrow product range, higher price, and lower quality of EFP as reasons for less green consumption. D'Souza *et al.* (2006) state that a large proportion of consumers experiences difficulties in selecting EFP due to a rampant proliferation of ambiguous green labels that 'confuse consumers and undermine credibility' (De Pelsmacker *et al.*, 2005, p. 515). Consumers' evaluations of (and disfavor for) the possible negative individual consequences of purchasing EFP (i.e., paying more to purchase EFP, wasting time to go specialized stores or to recognize EFP on the shelf) can be considered a negative ego-centric motivation for not engaging in EFP purchasing. Carrington *et al.* (2014) maintain that, particularly with reference to frequently purchased items, individuals who believe they lack the necessary resources and opportunities to buy green goods are unlikely to form strong behavioral intentions or may be prevented from buying EFP at the moment of purchase. Hence, we hypothesize the following:

H₄: Perceived personal inconvenience of purchasing EFP has a negative effect on the intention to purchase EFP (**H_{4a}**) and the purchase of EFP (**H_{4b}**).

2.2 Eco-Friendly Product Purchasing Patterns of Green and Non-Green Consumers

The second objective of this study is to assess differences in the motivational process that leads to purchasing EFP between 'green' and 'non-green' consumers (i.e., consumers who engage in a set of pro-environmental behaviors for environmental reasons vs. consumers who do not engage in these behaviors). We argue that green and non-green consumers differ significantly in the influence that positive altruistic (EC), positive ego-centric (GSI, MO), and negative ego-centric (PPI) antecedents have on EFP purchase intention and behavior, in the willingness to purchase EFP, and in the intention-behavior relation.

Effects of EC, GSI, and MO on the EFP Purchase Intention and Behavior of Green and Non-Green Consumers

Prior research has found that consumers who already engage in a range of green activities (e.g., taking part in pro-environmental organizations, sorting garbage, recycling items) for environmental reasons are more willing to engage in other green actions (e.g., purchasing EFP) (Thøgersen and Ölander, 2002). The tendency of green behavior to spread across multiple areas of action is called the 'spillover effect': as a person starts to behave in an environmentally friendly way in one area, that person's preparedness to behave in an environmentally friendly way in other related areas will increase (Thøgersen and Ölander, 2003). However, the spillover effect does not only concern the likelihood for an individual to perform related green behaviors, but it also results in motivational changes for an individual to perform related green behaviors. As Thøgersen and Crompton (2009, p.143) posit, "the spillover effect is (also) said to occur when adoption of a particular (green) behavior increases the motivation for an individual to adopt other related (green) behaviors". That is to say, the adoption of a particular eco-friendly behavior for pro-environmental reasons strengthens an individual's (altruistic and ego-centric) positive motivations to engage in other pro-environmental related behaviors.

This twofold meaning of the spillover is grounded in psychological theories that postulate a common motivational root leading to an individual's consistency across diverse pro-environmental behaviors. Bratanova *et al.*, (2012) and Whitmarsh and O'Neill (2010) refer to Dissonance Theory (Festinger, 1957) and Self-Perception Theory (Bem, 1972) to postulate green consumers' tendency to avoid inconsistencies in beliefs, attitudes, and behaviors. As a person starts to behave pro-environmentally in one area for pro-environmental reasons, that person's self-identity, attitude, and moral norms are likely to change in a way that *i*) strengthens the (altruistic and ego-centric) positive motivational roots of related pro-

environmental behaviors, and *ii*) increases consumers' willingness to perform related green behaviors.

Care for the environmental consequences of purchasing, green self-identity, and moral obligation represent motivational causes of cross-situational pro-environmental behaviors, such as recycling (Mannetti *et al.*, 2004), bringing one's own shopping bags to the grocery store (Chan *et al.*, 2008), green activism (Dono *et al.*, 2010), and supporting charitable causes (White and Peloza, 2009). Empirical research (albeit limited) has found that care for the environmental consequences of purchasing, green self-identity, and moral obligation have stronger effects on pro-environmental behaviors for green consumers than for non-green consumers. For instance, Thøgersen and Ölander (2002) found that green consumers assign more importance to altruistic variables in their choices than non-green consumers do. Dono *et al.* (2010) found greater self-identity enhancement in pro-environmental political actions for green than non-green consumers. Koestner *et al.* (2001) found that green consumers see greater potential for restorative experiences (avoiding distress) in natural environment activities than non-green consumers do. Hence, we hypothesize the following:

H₅: The positive effect of care for the environmental consequences of purchasing, green self-identity, and moral obligation on the intention to purchase EFP (**H_{5a}**, **H_{5b}**, **H_{5c}**) and the purchase of EFP (**H_{5d}**, **H_{5e}**, **H_{5f}**) is greater for green than for non-green consumers.

Effects of PPI on EFP Purchase Intention and Behavior and the Intention-Behavior Relation of Green and Non-Green Consumers

Traditional consumer behavior models, such as the Theory of Planned Behavior (Ajzen, 1991), widely assume that behavioral intention is a precursor of actual behavior (De Cannière *et al.*, 2009). However, within the pro-environmental consumption literature, extant research has emphasized significant differences in the EFP purchase intention-behavior relation

between green and non-green consumers. Although green consumers might be more willing to purchase EFP than non-green consumers, green consumers, as opposed to non-green consumers, often do not translate their EFP purchase intention into actual purchase behavior (the 'green purchasing gap' – Carrington *et al.*, 2014). These differences may be due to a different temporal evaluation of the personal inconvenience associated with purchasing EFP between green and non-green consumers and, thus, to a different effect of the negative variable on EFP purchase intention and behavior for these two consumer groups (Gupta and Ogden, 2009).

Non-green consumers mainly evaluate the personal inconvenience associated with purchasing EFP at the intention formation stage. Non-green consumers take the utilitarian (e.g., quality and price) aspect of buying EFP into account more than the ethical aspect when forming buying intentions (Carrigan and Attalla, 2001), and they strongly associate negative personal ego-centric evaluations (i.e., individual loss) with pro-environmental consumption (Chang *et al.*, 2008). Furthermore, non-green consumers' low familiarity with eco-friendly behaviors enhances these consumers' inertia and perceptions of the costs that will be incurred when switching to unfamiliar eco-friendly behaviors (Bray *et al.*, 2011; Gleim *et al.* 2013), leading them to perceive EFP as undesirable alternatives and reducing their EFP purchase intentions. Therefore, when they are inside a store, non-green consumers follow their intentions of opting for conventional alternatives, exhibiting a rather consistent intention-behavior relation. Similarly, when their considerations lead them to a positive EFP buying intention, they are inclined to act according to their intentions because they deliberated about which choice to make at the intention-formation stage.

In contrast, green consumers mainly evaluate the personal inconvenience of purchasing EFP at the behavioral stage. Green consumers are more motivated to engage in EFP purchasing than non-green consumers (Thøgersen and Ölander, 2003). They attach high importance to

the presence of ethical attributes in the products (Auger *et al.*, 2010), which leads them to form stronger behavioral intentions to buy EFP than non-green consumers (Shaw and Shiu, 2003; Follows and Jobber, 2000). However, when they are inside a store, green consumers exhibit mixed ethical and ego-centric evaluations of EFP (Chang *et al.*, 2008). Recent research has found that green consumers' difficulties of finding EFP inside the store or of recognizing EFP on the shelves dampens actual green purchase behavior (Carrington *et al.*, 2014). Hence, we hypothesize the following:

H_{6a}: The negative effect exerted by perceived personal inconvenience of purchasing EFP on the intention to purchase EFP is greater for non-green than for green consumers.

H_{6b}: The negative effect exerted by perceived personal inconvenience of purchasing EFP on the purchase of EFP is greater for green than non-green consumers.

H₇: The intention to purchase EFP has a positive effect on EFP purchase behavior (**H_{7a}**), which is greater for non-green than green consumers (**H_{7b}**).

Hypotheses are summarized in Table 3.

3. Method

3.1 Selected Product Category

Consumers show different attitudes toward the purchase of EFP according to the product category involved (Luchs *et al.*, 2011; Auger *et al.*, 2010; Davies *et al.*, 2012). De Pelsmacker and Janssens (2007) stress the importance of the principle of 'specificity': measures of motivations, attitude, intentions, and behaviors should be specifically related to the context of a study to provide a correct interpretation of the motivational process.

Therefore, there is a consensus on the study of green consumption for specific behaviors and product categories (Moisander, 2007). In light of these considerations, we defined all concepts in the model in the context of purchasing one particular product category: eco-friendly tissue-paper products (EFTPP). EFTPP products are paper napkins, toilet papers, scrolls, paper towels, and paper tablecloths (Nielsen product category tree for grocery non-food) that: *i*) are manufactured from recycled paper or paper from legally and sustainably harvested wood or made of organic cotton; *ii*) involve low energy and water consumption during the manufacturing processes; and *iii*) are not chlorine bleached (European Commission, 2011b).

This product category was selected for the following reasons: 1) governments have recently addressed the role of EFP that are purchased on a regular basis, such as EFTPP, to reduce consumers' environmental footprint, and they call for further research about these products (EU, 2011b), 2) eco-friendly paper products show one of the highest growths in market share among all eco-friendly product categories, presenting a good context for the analysis for EFP purchasing (Co-operative Bank, 2011), and 3) consumers cannot exhibit compensatory post-purchasing behaviors (i.e., recycling or reusing materials) because tissue-paper products cannot be recycled after use (European Commission, 2011b).

3.2 Pilot Studies and Measures

We based the measures for the constructs in the model on a thorough literature review and on the results of two exploratory qualitative studies involving adult Italian consumers. We conducted the two qualitative studies to explore potential additional facets of each construct and to better adapt the constructs to the chosen product category (EFTPP). As in Carrigan and Attalla (2001), we conducted five two-hour focus groups of six adult participants each and 51

in-depth, face-to-face, semi-structured interviews, which lasted for one hour each. After preliminary analysis of five focus groups and 51 interviews, theoretical saturation of the data was reached (Patton, 2002).

We pre-tested the resulting questionnaire with a sample of 45 adult consumers to identify potential problems with clarity and comprehension. This process resulted in some minor changes. The resulting scales are shown in Appendix A.

For care for the environmental consequences of purchasing (EC), we used Follows and Jobber's (2000) four-item scale and adapted the scale to the product category at hand (EFTPP). To measure green self-identity (GSI), we added two items (GSI₃ and GSI₄) generated from the qualitative studies to Sparks and Shepherd's (1992) two-item scale [2]. To measure moral obligation (MO), we used Sparks and Shepherd's (2002) three-item scale. To measure concern for the personal inconvenience of purchasing EFP (PPI), we developed a four-item scale based on a review of the literature and on the qualitative studies. To measure respondents' intention to purchase EFTPP (IP), we used Shaw and Shiu's (2003) one-item scale, based on Bergkvist and Rossiter's (2007) findings that single-item measures were equally predictively valid as multiple-item measures of concrete singular object (such as purchase intention). Finally, to measure self-reported purchasing of EFTPP (P), we used two items from Follows and Jobber (2000). We measured all items on seven-point Likert scales anchored by "1= Completely disagree" and "7= Completely agree", except items measuring the purchasing of EFTPP, which were coded on a seven-point Likert scale anchored by "1=Never" and "7=Always".

3.3 Main Study: Procedure and Samples

The main study involved a quantitative study (survey) in Italy with purposive samples of green and non-green adult consumers (aged above 18) responsible for grocery shopping in the household.

The questionnaire was composed of four sections. The first section explained the aim of the study, that is, to analyze respondents' consumption behaviors generally and as regards commodities and eco-friendly commodities. Guidelines to complete the questionnaire were also provided. The second part contained two screening questions. The first concerned consumers' purchasing responsibility ('Please indicate whether you are responsible for the grocery shopping in the household' - Follows and Jobber 2000), because we wanted only grocery shoppers to partake in the study (Davies *et al.*, 2012). The second screening question concerned consumers' engagement in a set of pro-environmental behaviors (Moons and De Pelsmacker, 2012), because we aimed to identify green and non-green consumers (see Appendix B). Respondents were asked to indicate whether they did or did not engage in a set of eco-friendly behaviors (e.g., avoiding wasting water, recycling items, taking part in pro-environmental campaigns), and, if yes, to indicate the reason for which they engaged in each green behavior (anchors range from 1 to 5, with "1=no", "2=yes, because I have to", "3=yes, because it saves me money", "4=yes, because it is better for the environment", "5=yes, because everybody does it"). To be considered green consumers, respondents should engage in the majority (>50%) of Moons and De Pelsmacker's (2012) set of eco-friendly behaviors for environmental reasons ('4=yes, because it is better for the environment' – see Appendix B). On the contrary, to be considered non-green consumers, respondents should not engage in the majority (>50%) of Moons and De Pelsmacker's (2012) set of eco-friendly behaviors ("1=no"). Consistent with the theoretical notion of green consumers (individuals who are engaged in a set of pro-environmental behaviors for environmental reasons) and non-green consumers (individuals who are not engaged in a set of pro-environmental behaviors) adopted

in this study, we did not consider neither as green nor as non-green consumers those respondents who mostly engage in pro-environmental behaviors because of mere utilitarian evaluations (e.g., purchasing energy-saving lamps to save money) or because the specific pro-environmental behavior may be mandatory (e.g., sorting garbage is mandatory in many countries) (Whitmarsh and O'Neill, 2010). Previous research suggests that 'spillover effects' across pro-environmental behaviors may only occur if people perform the behavior for environmental reasons (Thøgersen and Ölander, 2003). The third part of the questionnaire included the measurement scales for the EFTPP model variables and the items for the common method variance assessment [3]. The last part recorded socio-demographic data and thanked the participants.

In accordance with the aim of the study (to analyze EFP purchasing patterns of green and non-green consumers), and thus to properly reach both green and non-green consumers, the authors and a team of research assistants delivered questionnaires during environmental activities (i.e., cleaning parks) or specific green days (i.e., the Day of the Earth) organized by different pro-environmental organizations (Greenpeace, Inachis, ISDE, Legambiente, LIPU, ProNatura, WWF), as well as in the street in ordinary days. Respondents were asked to complete off-line self-administered questionnaires. They received a small incentive to partake in the study, that is, tickets for an online lottery of multiple small prizes [4] (Görritz, 2004). 1,196 consumers agreed to partake in the study (41% average response rate), and 1,147 fully completed the questionnaire, of whom 49 were disqualified because they were not responsible for grocery shopping in the household (screening question 1), resulting in a sample of 1,128 consumers responsible for grocery shopping. Consistent with the theoretical notion of green and non-green consumers adopted in the study (screening question 2), 202 respondents (18% of qualified grocery shoppers) were further disqualified because they were neither green nor non-green consumers, that is they engaged in the majority (>50%) of

Moons and De Pelsmacker's (2012) set of eco-friendly behaviors for reasons different from environmental protection (i.e., they had to, the behavior saved them money, everybody did it). Hence, the final sample was composed of 926 valid questionnaires, characterized as follow:

- 453 green consumers (40% of qualified grocery shoppers), that engaged in the majority (>50%) of Moons and De Pelsmacker's (2012) set of eco-friendly behaviors for environmental reasons relative to other reasons (i.e., they had to, the behavior saved them money, everybody did it);
- 473 non-green consumers (42% of qualified grocery shoppers), that did not engage in the majority (>50%) of Moons and De Pelsmacker's (2012) set of eco-friendly behaviors.

4. Data Analysis and Results

Table 1 reports the socio-demographic composition of the two samples. The two samples show similar socio-demographic characteristics in almost all respects ($p>.05$), except for one variable: the green sample is more highly educated than the non-green sample (consistent with prior research, e.g., Diamantopoulos *et al.*, 2003).

[Insert Table 1 about here]

Results indicate significant ($p<.05$) differences in the construct means between the two samples (Appendix A). The mean scores for positive motivations (EC, GSI, and MO) and EFP purchase intention (IP) are significantly higher for green than for non-green consumers, and the mean score of the negative motivation (PPI) is significantly lower for green than for

non-green consumers. Conversely, the mean scores of EFP purchase behavior (P) do not differ significantly ($p > .05$) between the two consumer groups.

We used structural equation modeling to test the model, following Anderson and Gerbing's (1988) two-step approach. The first step involved the assessment of the measurement model by conducting confirmatory factor analysis (CFA) on each sample. The second step involved the analysis of the full structural model on each sample. Finally, we performed multi-group analysis (Steenkamp and Baumgartner, 1998) to assess differences between green and non-green consumers.

4.1 Confirmatory Factor Analysis and Structural Analysis

We validated the six-factor measurement model by means of CFA using LISREL 8.80 (Jöreskog and Sörbom, 2006). Global fit indices are good (Table 2). Both samples show acceptable RMSEA lower than .08, SRMR lower than .05, and NFI, NNFI, and CFI all greater than .95. Local fit criteria are good. All the items significantly load on their constructs ($p < .001$), and factor loadings are greater than .60, ranging from .647 to .992 (Bagozzi and Yi, 1988). Cronbach's alphas (α) for all constructs are greater than .70, in accordance with Nunnally's (1994) standard of internal consistency (Appendix A). Cronbach's alpha for the intention to purchase (IP) construct was not computed because IP is measured by one single item. The composite reliability (CR) threshold of .60 is met for every factor, and the average variance extracted (AVE) is always greater than .50 (Bagozzi and Yi, 1988). Discriminant validity is confirmed because the shared variance between pairs of factors is always less than the corresponding AVE (Fornell and Larcker, 1981).

[Insert Table 2 about here]

Analysis of the full structural model for each group was performed using LISREL 8.80 (Jöreskog and Sörbom, 2006) and the Maximum Likelihood Method. Both global and local fit indices gave good results. All standardized item loadings are significantly ($p < .001$) greater than .60, ranging from .647 to .993. The results of the structural paths are reported in Table 3 and Figure 2 [5].

[Insert Table 3 about here]

[Insert Figure 2 about here]

4.3 Multi-Group Analysis

To check whether the model structure and the hypothesized relationships among the examined constructs were invariant across the investigated samples (Steenkamp and Baumgartner, 1998), we performed configural, metric, and structural invariance tests on the full sample model ($N=926$) (Tables 4a and 4b).

[Insert Tables 4a and 4b about here]

Configural invariance (C.I.) (i.e., whether the pattern of fixed and free parameters is the same for the two groups) and partial metric invariance (P.M.I.) (i.e., whether most of the factor structure is statistically invariant between the groups) (Tables 4a and 4b) are both met ($\Delta\chi^2(9)=16.13, p=.07$). Therefore, the model could be meaningfully compared across the groups, and structural invariance (S.I.) (i.e., whether regression weights for each of the structural paths are statistically invariant between the groups) was tested. We began by

constraining all structural paths to be invariant between the two groups and then entering the constraints one by one, keeping previous invariant paths constrained while freeing non-invariant paths.

The results of the green sample reveal that the effects of the antecedents on intention to purchase EFP are all significant ($p < .05$). H_{1a} , H_{2a} , H_{3a} , and H_{4a} are confirmed (Table 3, Figure 2). In contrast, the effects of the same variables on EFP purchase behavior are not significant, with the exception of the negative variable ‘perceived personal inconvenience of purchasing EFP’ (PPI). PPI exerts a strong negative impact especially on EFP purchase behavior. Therefore, H_{4b} is confirmed. Purchase intention has a significantly positive effect on buying behavior. Therefore, H_{7a} is confirmed.

The results of the non-green sample reveal that all variables are significant antecedents of the intention to purchase EFP and purchase behavior ($p < .01$), with the exception of care for the environmental consequences of purchasing ($p > .10$). Thus, for this subsample, all the hypotheses are confirmed except for H_{1a} and H_{1b} . PPI exerts a negative impact on both IP and P with a similar magnitude as the positive motives. The relation between IP and P is relatively strong. Therefore, H_{7a} is confirmed for this subsample.

The comparison between green and non-green consumers (Figure 2 and Table 3) reveals that care for the environmental consequences of purchasing (EC) exerts a stronger impact on the formation of EFP purchase intention for green than for non-green consumers ($H_{5a}: EC \rightarrow IP$ $G > NG$, $\Delta\chi^2(1) = 10.82$, $p = .001$; H_{5a} confirmed). Results of the means comparison (Appendix A) also show that green consumers assign more importance to the environmental consequences of purchasing ($\mu = 6.34$) than non-green consumers ($\mu = 4.02$). However, the effect of the same variable on EFP purchase behavior does not differ significantly ($p > .10$) between the two consumer groups (H_{5d} not confirmed). That is, the difference between the two consumer groups with respect to the impact of care for the environmental consequences

of purchasing stops at the ‘intention-purchase’ stage. At the behavioral stage, the effect of the altruistic variable becomes invariant between the two consumer groups, and green and non-green consumers show similar EFP purchasing behavior processes. The remaining paths (GSI and MO on intention and behavior) do not significantly differ between the groups because $\Delta\chi^2(I)$ is always not significant ($p > .10$). Thus, H_{5b} , H_{5c} , H_{5e} , and H_{5f} are not confirmed.

Finally, the comparison between green and non-green consumers reveals the different role of the negative ego-centric variable (perceived personal inconvenience of purchasing EFP – PPI) on EFP purchase intention (IP) and behavior (P) for green and non-green consumers. As we hypothesized, the results confirm that the negative effect exerted by PPI on intention to purchase EFP is greater for non-green than for green consumers ($H_{6a}: PPI \rightarrow IP \text{ NG} > \text{G}$, $\Delta\chi^2(I) = 18.18$, $p = .001$; H_{6a} confirmed). In contrast, the negative effect of PPI on purchase behavior is greater for green than non-green consumers ($H_{6b}: PPI \rightarrow P \text{ G} > \text{NG}$, $\Delta\chi^2(I) = 88.18$, $p = .001$; H_{6b} confirmed). The perception of facing personal inconvenience when consuming green goods affects non-green consumers mainly at the stage of intention formation, whereas PPI appears to affect green consumers more at the behavioral stage. On the one hand, PPI significantly reduces non-green consumers’ intention to purchase EFP, reinforcing non-green consumers’ unwillingness to purchase EFP. For this subsample, intention correlates with behavior ($\beta_{2,1}: IP \rightarrow P$) rather strongly ($\beta_{2,1} = .612$, $p < .01$). On the other hand, PPI reduces green consumers’ intention to purchase EFP to a lesser extent, but PPI affects the behavioral stage substantially. Notwithstanding the declared willingness to buy EFP, in this subsample, intention and purchase behavior show a relatively small correlation ($\beta_{2,1} = .209$, $p < .01$).

Multi-group comparison reveals that the intention-behavior relationship is significantly greater for non-green than green consumers ($\beta_{2,1}: IP \rightarrow P$, $\Delta\chi^2(I) = 33.31$, $p = .001$), confirming H_{7b} . These results are further supported by results of the means comparison (Appendix A). Despite the mean of IP is significantly ($p < .05$) higher for green ($\mu = 5.52$) than for non-green

consumers ($\mu=4.17$), the means of self-reported purchase behavior (P) do not differ significantly between the two samples (green $\mu=4.07$; non-green $\mu=3.98$; $p > .05$).

4.4 Common Method Variance Assessment

As suggested by Podsakoff et al. (2003), we followed ex ante and ex post procedures to control for order effects and common method variance. To control for possible order effects, we prepared two versions of the questionnaire with different orders of the items. To prevent evaluation apprehension, we assured respondents of the anonymity and confidentiality of the study, that there were no right or wrong answers, and that they should answer as honestly as possible. We statistically investigated common method variance by applying the 'marker variable' technique. We used as the marker variable the item 'I do not feel strong emotions while I am watching advertising', measured on a seven-point scale, which we expected to be conceptually unrelated to both our predictors and the criterion variables. All coefficients that were significant in a bivariate correlation analysis remained statistically significant after we controlled for the marker variable. Thus, common method variance does not represent a major threat in our data.

5. Discussion

The present study proposes and tests a parsimonious model of purchasing eco-friendly products (EFP) that integrates care for the environmental consequences of purchasing (positive altruistic antecedent), green self-identity and moral obligation (positive ego-centric antecedents), and perceived personal inconvenience of purchasing EFP (negative ego-centric

antecedent). In addition, this study compares green and non-green consumers (i.e., consumers who engage in green behaviors for environmental reasons vs. consumers who do not engage in green behaviors), in order to assess the extent to which the two consumer groups show different EFP purchasing processes with respect to consumers' willingness to purchase EFP, the effect of the antecedents on EFP purchase intention and behavior and the intention-behavior relation.

In general, the conceptual model is largely supported in both groups. Ego-centric positive motives seem to be at least as important as altruistic ones, and negative motives seem to be at least as relevant as positive ones. Green self-identity, one of the two positive ego-centric antecedents, exerts the largest effect on the intention to purchase EFP in both samples, thus confirming the relevant role of ego-centric motivations in fuelling green consumption. Our findings confirm the multiple determination of EFP purchasing and that EFP purchasing should be best viewed as driven by a mixture of altruistic and ego-centric positive antecedents (White and Peloza, 2009; Bamberg and Moser, 2007).

Some remarkable differences in the decision process between green and non-green consumers emerged. Results of the means comparison support the occurrence of a positive spillover effect for green consumers: EFP purchase intention is significantly higher for green than for non-green consumers. Consumers' involvement in a set of green behaviors for environmental reasons increases their willingness to engage in EFP purchasing.

The results of the structural analysis also reveal significant differences between green and non-green consumers' EFP purchasing process. The two samples differ with respect to the impact of the care for the environmental consequences of purchasing on EFP purchase intention. That is, the effect of care for the environmental consequences of purchasing on intention to purchase EFP is significant for green consumers, whereas it is not significant for non-green consumers. Thus, for non-green consumers, the altruistic variable is not a

significant motivational antecedent of EFP purchasing. Our results are consistent with Thøgersen and Ölander's (2002) findings: for consumers who engage in pro-environmental behaviors, altruistic values have a stronger effect on purchase intention than for consumers who do not engage in pro-environmental behaviors. Our results confirm that green consumers place greater importance on the environmental consequences of purchasing specific products than non-green consumers do.

Second, green and non-green consumers differ with respect to the negative effect exerted by the perceived personal inconvenience of purchasing EFP (PPI). As we hypothesized, the negative variable PPI mainly reduces non-green consumers' intention to purchase EFP, whereas it mainly reduces green consumers' EFP purchase behavior. Concerning the former, our results show that non-green consumers, who perceive personal inconvenience in buying green goods, are unlikely to form strong behavioral intentions. For this subsample, the negative variable PPI reinforces and is consistent with non-green consumers' less positive willingness to buy EFP. In this respect, our results are consistent with Gupta and Ogden's (2009) findings of consumers' perceptions of EFP as unacceptable substitutes for conventional versions.

In contrast, the results of the negative impact exerted by PPI on green consumers' EFP purchase behavior show that although green consumers may have formed strong intentions to purchase EFP, they are inclined to actually purchase less EFP as a result of the negative effect of PPI. Our results support Thøgersen *et al.*'s (2012) findings of also green consumers usually spending little time and effort when buying a common repeat purchase product and minimizing the amount of time and effort spent on the decision making. Results of the means comparison also support the intention-behavior gap held by green consumers. Despite the fact that green consumers are more willing to purchase EFP than non-green consumers, the means of EFP self-reported purchase behavior do not differ between the two consumer samples.

Green and non-green consumer groups do not differ significantly with respect to the impact exerted by green self-identity and moral obligation (the positive ego-centric antecedents) on EFP purchase intention and behavior. In that respect, our results differ from *Dono et al.* (2010) and *Koestner et al.* (2001) who found a greater influence of green self-identity and distress avoidance on green activism for green consumers. One possible explanation is that green consumers may have been stricter with themselves when answering the questionnaire than non-green consumers. When asked whether they perceived themselves to be green consumers, they might have answered according to their ‘actual self’ due to the awareness that in their everyday life, they are still far from being fully green consumers. In contrast, non-green consumers might be aware to a lesser degree of what green consumption means and might have answered according to their ‘ideal self’, reflecting social desirability bias or neutralization (*Chatzidakis et al.*, 2007; *White et al.*, 2012). A second possible explanation is related to the low-involvement nature of the product category studied (eco-friendly tissue paper products – EFTPP), which may have affected responses. The low perceived positive environmental impact of buying EFTPP compared to conventional products may have led to a lower identification and moral obligation (self-relevance) with the act of purchasing this product (*Pelozo et al.*, 2013). Previous research has shown that there is a lack of product-specific information about the positive environmental consequences of purchasing eco-friendly low-involvement products, which reduces perceived consumer effectiveness (*De Pelsmacker and Janssens*, 2007).

6. Theoretical contribution

The present study builds upon extant research on the antecedents of EFP consumption and adds insight into the EFP purchasing process in a number of ways. First, this study extends previous research in that, for the first time, it integrates relevant positive and negative altruistic and ego-centric antecedents of EFP purchasing into one comprehensive theoretical framework, and it assesses the relative importance of each of these antecedents on EFP purchase intention and behavior. Research has predominantly analyzed altruistic variables; only recently researchers have recognized how personal benefits (ego-centric antecedents) may drive consumers to engage in purchasing EFP. Despite this advancement, the development and empirical assessment of comprehensive models incorporating positive (altruistic and ego-centric) and negative (ego-centric) antecedents of EFP purchasing have been scarce. The few extant attempts have often resulted in rather complex models (Shaw and Shiu, 2003) due to the continuous addition of variables into the Theory of Planned Behavior (Ajzen, 1991), which has led scholars to call for an elementary revision and possible replacement of this theoretical framework for green purchasing behavior (Moisander, 2007). By integrating the Social Dilemma Theory and the Psychological Egoism literature, the first contribution of this paper is the development and testing of a parsimonious model for EFP purchasing that embraces both positive (altruistic and ego-centric) and negative (ego-centric) antecedents, which have been theoretically suggested in the past but have rarely been empirically tested together.

Second, the study improves previous insights with respect to the EFP purchasing process of different consumer segments. EFP consumption processes have mainly been analyzed by studying undifferentiated consumer samples or self-declared green purchasers, whereas the comparison of consumers who engage differently in pro-environmental behaviors has rarely been investigated (Moons and De Pelsmacker, 2012; Whitmarsh and O'Neill, 2010 for a few exceptions). Consistent with the notion of the 'spillover effect' (Thøgersen and Ölander,

2003), we propose that being involved in green behaviors for pro-environmental reasons vs. not being involved in green behaviors may be an effective criterion for segmenting consumers and their EFP purchasing patterns. Our study confirms that, when consumers engage in a set of green behaviors for pro-environmental reasons: *i*) they are more willing to purchase EFP, *ii*) the adoption of eco-friendly behaviors strengthens the positive motivations for an individual to adopt other pro-environmental related behaviors (Thøgersen and Ölander, 2003). A further contribution of this study is that it develops insight into the specific antecedents of EFP purchasing for green and non-green consumers to assess potential similarities and differences in EFP purchasing process, the hypothesized antecedents, their impact on EFP purchase intention and behavior, and the intention-behavior relation.

7. Limitations and Suggestions for Future Research

While we provide new insights into EFP consumption, our study has some limitations that should be addressed in future research. First, the model should be tested on other consumer segments and in other consumption contexts. The present study aims to analyze the EFP purchasing process of green and non green-consumers. Based on the notion of ‘spillover effects’ (Thøgersen and Ölander, 2003), green consumers are defined as those individuals who primarily engage in a set of pro-environmental behaviors for environmental reasons, while non-green consumers as those individuals who do not engage in a set of pro-environmental behaviors. Accordingly, the empirical study involved a final sample of 453 green and 473 non-green consumers (qualified grocery shoppers), while 202 grocery shoppers were disqualified because they were neither green nor non-green consumers (i.e., they primarily engaged in pro-environmental behaviors for reasons different from the sake of

the environment). The involvement of green and non-green consumers, as defined above, is purposive, consistent with the notion of 'spillover effects' and with the aim of this study. Empirical evidence further supports the distinction adopted in this work and posits that positive spillover effects across pro-environmental behaviors may occur only if people perform the green behavior for environmental reasons (Thøgersen and Crompton, 2009). However, we invite future research to analyze the EFP purchasing process of that residual segment of 'hybrid' consumers disqualified in this study, and to compare green, non-green, and 'hybrid' consumers' EFP purchasing process in order to assess significant differences across these samples, and provide marketers and policy makers with meaningful insights for developing effective policies and marketing strategies tailored for each consumer group.

Second, research about 'pro-environmental' issues may suffer from social desirability bias (Auger and Devinney 2007). To avoid literal inconsistency and over-reported results, researchers and marketers have strongly advocated the necessity to address well-established green consumers, that is, consumers holding true, established attitudes towards the environment, such as those who actually engage in pro-environmental behaviors (Shaw and Shiu, 2003). To this end, to properly reach green consumers, we gathered data from consumers while they were truly engaging in pro-environmental activities (i.e., cleaning parks during the Day of the Earth). However, despite the fact that this approach contributes to reducing literal inconsistency (as suggested by previous research), it may suffer from the fact that consumers are approached when their connection with pro-environmental motives may be higher than in ordinary, daily shopping contexts. Future research is invited to deal with this issue, to balance the trade-off between reduction of social desirability bias and enhancement of realism in data collection contexts.

Third, the present study considers a specific product category, eco-friendly tissue paper products, which includes different but homogeneous low-involvement products (paper

napkins, toilet papers, scrolls, paper towels, and paper tablecloths). To improve the external validity of the model, future research should replicate the study on high-involvement EFP (e.g., electric cars) and should replicate the study in culturally different environments to evaluate the impact of cultural dimensions on EFP buying processes.

Finally, our measures of purchase behavior are cross-sectional and self-reported. We have shown that EFP purchase intention and self-reported purchase behavior were perceived by respondents as two different concepts because discriminant validity was confirmed. In addition, significant differences between green and non-green consumers in the intention-behavior relationship and the intention-behavior gap among green consumers suggest that the respondents differentiated between the two variables when completing the questionnaire. Despite this, we acknowledge that self-reported purchase behavior represents one of the limitations of this study. Future research is invited to integrate self-reported measures with in-store observations, to rely on panel data or to include measures of social desirability.

8. Implications for marketers and policy makers

The present study has useful implications for marketers, policy makers, and organizations aiming to foster EFP consumption and enhance eco-friendly behavior change. By developing communication programs that are specifically tailored toward green and non-green consumers, marketers and policy makers may appeal to the most effective (altruistic and ego-centric) antecedents of EFP purchasing of each consumer group, thus encouraging more successfully the adoption of eco-friendly 'daily' purchasing patterns in each segment (Lindridge *et al.*, 2013). In addition, deeper knowledge about the differences in EFP motivational process between green and non-green consumers enables marketers, policy

makers, and organizations to opt for tailored vs. standardized communication strategies when addressing one specific consumer group or both simultaneously.

Our results show that convincing green consumers requires a partially different focus than persuading non-green audiences. Care for the environmental consequences of purchasing (positive altruistic motivation) and consumers' perception of the personal inconvenience of purchasing EFP (negative ego-centric motivation) influence EFP purchase intention and behavior differently between green and non-green consumers. Similarly, the strength of the intention-behavior path significantly differs between the two consumer groups (Figure 2).

First, our results show that care for the environmental consequences of purchasing influences EFP purchase intention of green and non-green consumers differently. The effect of care for the environmental consequences of purchasing on EFP purchase intention is significant only for green consumers, whereas it is not significant for non-green consumers. Hence, the argument of 'care for the environmental consequences of purchasing' should be ignored when addressing non-green consumers, while it might be used effectively when addressing green consumers. When addressing green consumers, manufacturers of EFP may develop co-branded partnerships with pro-environmental organizations (as Kimberly Clark and WWF did) to address active green members with tailored marketing campaigns (Vock *et al.*, 2013).

The content of this communication should focus on the environmental motivations for purchasing EFP (Griskevicius *et al.*, 2012) and, in particular, the specific amount of natural resources that consumers may save by purchasing EFP. For instance, Small Steps has recently developed a 'Tree Calculator' Tool (<http://www.marcalsmallsteps.com/learn/tree-calculator>) to calculate the specific number of trees and amount of CO₂ and water an individual or a family may save by purchasing one or more packs of EFTPP. Concerning the choice of communication media, when addressing green consumers, manufacturers of EFP may resort to using e-mail marketing, social media profiles (i.e., Facebook), or mobile

applications that allow tailored one-to-one marketing communications focused on the environmental consequences of purchasing specific goods. GoodGuide, for instance, is a phone application that reviews the environmental implications of various products. While shopping, this device may allow green consumers to type in a product they are about to buy and read a brief review of that product's environmental impact.

Second, our results show the important role played by consumers' perception of the personal inconvenience of purchasing EFP. For both green and non-green consumers, consuming responsibly is seen as a time-consuming activity that is economically disadvantageous and stressful. This negative ego-centric variable exerts a significant negative influence on both green and non-green consumers' EFP purchase intention and behavior. Our results show that consumers perceive EFP as still lacking some of the desired features identified by DEFRA (2008), such as accessibility, affordability, and awareness. Unless market failures are corrected, both green and non-green consumers will not be able to buy responsibly (Prothero *et al.*, 2011). Hence, one class of public policy initiatives should focus on 'economic policies' (market-based instruments that influence purchasing decisions through taxes, incentives, subsidies, penalties, or grants for green enterprises – European Commission, 2012b), such as 'getting the prices right' or using tax instruments to adjust for environmental impacts and other externalities not reflected in market prices (Press and Arnould, 2009). To enhance the affordability of EFP and reduce green consumers' perception of EFTPP as too expensive, manufacturers may practice temporary discounted prices (Hi-Low promotions) to encourage trial uses of these products.

Furthermore, our results show remarkable differences in the role that the negative ego-centric variable (PPI) plays in the decisional process of purchasing EFP for green and non-green consumers. Marketers and policy makers should consider these significant differences when addressing green and non-green consumers. Perceived personal inconvenience of purchasing

EFP strongly reduces non-green consumers' intentions to purchase EFP. Hence, when addressing non-green consumers, marketers should seek to increase non-green consumers' intention to buy EFP through reducing non-green consumers' perceptions of EFP as being more expensive than the conventional alternatives. Marketers should let non-green consumers know that, despite the fact that purchasing EFP may be more expensive at the moment of the 'cash register', EFP consumption may allow consumers to save money in the long run. For instance, although energy-saving light bulbs may be more expensive than traditional incandescent alternatives, they allow consumers to save energy and money when using these goods. General Electric's energy smart® LED A19s advertising goes in this direction (<https://www.youtube.com/watch?v=fhBUFXo9udo>).

Conversely, our results show that PPI strongly reduces green consumers' EFP purchase behavior. Hence, when addressing green consumers, manufacturers of EFP should enhance consumers' perception of EFP accessibility and awareness inside the store, along with the development of Hi-Low promotions mentioned above. For instance, manufacturers of EFP should cooperate with retailers to assign dedicated departments or shelves to EFP or to ensure a better position on the shelf if EFP are placed alongside conventional products. Using smartphone technology to communicate the presence of EFP inside the store while green consumers are shopping might be a further strategy to provide real-time purchase input, thus reducing green consumers' perception of EFP purchasing as a time-consuming and stressful activity. For instance, GoodGuide and Eco-Label phone applications may be effective tools for reaching this goal. GoodGuide app provides green consumers with real time information about the presence of EFP inside the supermarket where these consumers are actually shopping, thus reducing the time needed to find EFP inside the store. Eco-Label App provides green consumers with real time information about which green product labels are

truly meaningful and which are not, thus overcoming the difficulties in selecting EFP due to a rampant proliferation of ambiguous green labels (De Pelsmacker *et al.*, 2005).

Finally, our results show important similarities between green and non-green consumers. The effects of the ego-centric positive antecedents, green self-identity and moral obligation, on EFP purchase intention and behavior are significant for both green and non-green consumers, and these effects do not differ significantly between the two consumer groups. That is, green self-identity and moral obligation are both significant antecedents of EFP purchasing, and they influence green and non-green consumers' EFP purchasing similarly. These results suggest that ego-centric arguments of green self-identity and moral obligation might be effectively used when marketers and policy makers aim to address green and non-green consumers simultaneously. The content of this communication should focus on the personal benefits that consumers can derive from purchasing and consuming eco-friendly alternatives in terms of green self-identity enhancement and guilt avoidance by obeying moral obligations. By leveraging anticipated positive emotions, marketers, policy makers, and pro-environmental organizations may boost green consumption behavior across larger segments of (green and non-green) consumers (Cornelissen *et al.*, 2008). With respect to the choice of communication media, marketers and policy makers may resort to national TV, general newspapers, in-store advertising, and labels that address untargeted populations. In this respect, the story of Eco-Lucart brand is explicative. Born in 1996 as producer of ecological, high-quality tissue for hygienic and sanitary use, the brand gained great success in the niche of green consumers. For almost ten years, the brand has advertised its EFTPP relying on communication contents which leveraged on altruistic drivers (e.g., the testimonial Albert, the cartoon baby tree who explained the environmental advantages of purchasing EFTPP). In 2005, the company decided to cover a wider market of green and non-green consumers. To this end, the company renamed the brand 'Eco-Lucart' as "Grazie" (Thanks): a name easy to

remember, yet full of meaning, which thanks and gratifies all the customers that have chosen and preferred the brand. Asphalt Art brand's communication goes in a similar direction, because this brand's advertises 'Guilt Free Eco-Friendly Materials from Asphalt Art'. Finally, Lush, the 'fresh handmade cosmetics' brand, also promotes its Little Green Bag in the whole market as a 'a gift for yourself', which makes women 'looking so green and looking so fine', 'a guilt-free gift to be proud of' (<https://www.youtube.com/watch?v=TEa-4MtU36k>).

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Notes

[1] Thirty-three percent of Americans now prioritize environmental protection, and 46% feel that citizens can take at least small steps to improve the environment (GfK Roper Consulting 2011). Similarly, 58% of Europeans feel that protecting the environment is very important to them, and 87% believe that environmental protection is the responsibility, at least in part, of citizens (European Commission 2011a). Consumers are also increasingly engaging in different pro-environmental actions. Sixty-six percent of Europeans engage in recycling (+7 points since 2007), 53% (+6) and 43% (+6) in reducing energy and water consumption, and 37% (+7) in waste reduction (European Commission 2012a).

[2] The results of an Exploratory Factor Analysis (PCA with Promax Rotation) clearly suggest that the green self-identity' scale is unidimensional, for both the green and non-green consumer samples. Specifically, communalities are all greater than .60, ranging from .611 to .712 for green consumers, and from .722 to .778 for non-green-consumers. The criterion of Eigenvalue>1 clearly shows that, in both the samples, one factor emerges which explains 66.4% (green) and 75.2% (non-green) of the variance. All factor loadings are significantly greater than .50, ranging from .782 to .844 for green consumers, and from .850 to .882 for non-green consumers. Finally, Cronbach's alphas are higher than .70 (green consumers: $\alpha = .83$; Non-green consumers $\alpha = .89$) (Appendix A).

[3] To reduce social desirability bias, the survey was separated into four sections, where we only introduced EFTPP purchasing as the major research topic in section three (Davies *et al.*, 2012). At the early stage of this section, as suggested by Chan and Lau (2001, p. 18), 'since different people might have different interpretations of what constitutes a green product, it is necessary to ensure that respondents under study would adopt a common frame of reference

when answering'. To this end, following Davies *et al.*'s (2012) suggestions, we provided a simplified definition and pictures of unbranded EFTPP.

[4] The use of small incentives contributes to reduce selection bias, and increases response quantity and quality (Göritz, 2004).

[5] Research in the domain of ethical consumption corroborates the conceptualization of EC, GSI, MO, and PPI holding similar cognitive positions in the EFP purchase decision process, as hypothesized in this study (Sparks and Shepherd, 1992, 2002; Sparks et al. 1995; Shaw and Shiu, 2003). To confirm this conceptualization, we tested an alternative model, with GSI and MO being antecedents of PPI. Results (Green consumers: $\chi^2= 472.243$, $\chi^2/d.f.=3.75$, RMSEA = .076, SRMR =.082; Non-green consumers: $\chi^2= 553.734$; $\chi^2/d.f.= 4.40$; RMSEA =.079; SRMR =.087) confirm that the model we developed in the present study fits the data better and should be preferred to the alternative one.