MASTER'S THESIS

THE SIGNIFICANCE OF ENVIRONMENTAL RESPONSIBILITY ON AIRLINE CUSTOMERS' INTENTION TO PURCHASE

Case: Finnair Ecosmart Sweden

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ABSTRACT

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Abstract

Operating in an energy intensive industry, airlines' environmental performance is under constant scrutiny of the regulators and authorities. By contrast, it seems that not many airlines have considered gaining competitive advantage in by differentiating as an environmentally responsible carrier. The commissioning company for this Master's Thesis was Finnair, and the intention of this study was to find out whether factors related to environmental responsibility affect Swedish airline passengers' intentions to purchase from an airline. In addition, the study intended to offer Finnair suggestions for a suitable sustainability marketing-mix that could be used to target the intended consumer segments with an environmentally responsible air travel.

The theoretical framework was built on a modified Ajzen's Theory of Planned Behavior (TPB), which assessed the airline passengers intended purchase behavior by their attitudes towards pro-environmental behavior (PEB), past purchase behavior related to PEB, perceived behavioral control and self-identity with regard to PEB. The results of this study show that environmental responsibility is not the primary driver for most of the airline passengers in their intention to purchase from an airline. Moreover, the respondents seemed not to acknowledge the determining association between environmentally sustainable flying and flying with a modern fleet. Finally, the results also indicated that the brand recognition increased the respondents' perception of the airline's environmental performance.

Finnair should diffuse the theme of environmentally responsible flying in its promotion campaigns on their fleet renewal with explicit messages communicating consumers about the interconnection between environmentally responsible flying and modern fleet. Finnair's Frequent Flyer program would be a feasible channel to engage the environmentally conscious Swedish airline passengers to use the shortest flight routes from Sweden to Asia with Finnair's modern eco-efficient aircraft.

Keywords
Airlines, environmental responsibility, intention to purchase, Ajzen's TPB, airline passenger, modern aircraft fleet
Location
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1   INTRODUCTION

Along with globalization and emerging economies air transport industry's role as a transport mode is unquestionable – aviation sector is a crucial driver for the global economy and the World is dependent on the airline networks. The global number of carried passengers in year 2012 was 3,2 billion, and worth 6,4 trillion USD cargo was shipped by air. Air transport's growth is highest in the emerging economies, such as India, Africa and China where the estimated *annual* revenue passenger kilometer growth is expected to be 6% until year 2033. This indicates that air passenger traffic doubles every 15 years. (ICAO, 2014.)

What comes to the socio-economical factors, air transport industry is a significant driver of the global economy supporting over 58 million jobs and 2,4 trillion USD in global GDP (IATA a., 2015). Aviation is a visible, energy intensive growth industry. The industry is known to be responsible for 2 to 3% of all global manmade CO_2 emissions that translated up to 705 million tonnes of CO_2 emissions in 2013, whereas the entire human population produced 36 billion tonnes of CO_2 in the respective year (ICAO, 2014). Due to the technological improvements in the aircraft and engine manufacturing, the jet aircraft are 70% more fuel efficient than their predecessors back in the 1960's (ATAG, 2014). Determined by the cross-industry umbrella organizations Air Transport Action Group (ATAG) and the United Nation's agency International Civil Aviation Organization (ICAO) he industry has committed to a 1,5% annual CO_2 emissions reduction target up to year 2020. Furthermore, the aviation industry is committed to stabilize its CO_2 emissions from 2020 by applying industry wide carbon neutral growth and aiming half its emissions by year 2050 (ATAG, 2014).

There are several measures that a single airline may take to reduce its CO_2 emissions from flying, the most efficient one being by renewing its aircraft fleet. Modern, new technology aircraft nowadays use an average of 3 liters fuel per 100 passenger kilometers and by launch of each new innovative aircraft model the average consumption further declines (ATAG, 2014). In the highly competed markets airlines, in order to be able to invest in latest technology aircraft, need to be profitable and competitive.

According to Barney (2001) to gain competitive advantage with green investments those need to generate ROI and value for the company through *reduced operating costs* or trough *differentiation advantages*. Moreover, Ottoman (1992) claims that increased brand awareness may significantly strengthen the gap between green and non-green brands, and thus, create the desired differentiation. E.g. a new Airbus A350 XWB wide-body aircraft used for long haul operations consumes 25 percent less fuel than its predecessor Airbus A340-300. Featuring the latest aircraft technology, besides enhanced environmental performance, the Airbus A350 XWB offers the airline cost savings, as fuel is the most significant single cost item for every operator. Furthermore, consumers generally prefer to fly with modern aircraft (Finnair Plc b., 2015). Hence, an investment into new aircraft may be considered and marketed as a green investment or part of proactive environmental strategy (PES) that anticipates to prepare an airline to foreseen changes in regulatory compliance or sustainability trends (Martinez-del-Rio, Antolin-Lopez & Cespedes-Lorente, 2015). However, assumingly, for an airline purchasing new aircraft is after all tied to the airline's shot-run superior return expectations and cost savings. This example shows how in aviation sector the enhanced environmental performance in many cases goes hand in hand – either with enhanced returns or improved regulatory compliance, or often both (Lynes and Dredge, 2006). This implies to the observation that to those operators flying with a modern fleet this offers as yet rather seldom utilized opportunity to differentiate and position as an environmentally responsible operator in the highly competitive aviation sector.

With the increase in the consumers' knowledge and attitude towards environmental issues implications for companies' sustainability-marketing strategies have also emerged (Meyers 2008, 58). Global warming, ozone depletion, biodiversity loss, among many other changes in our biosphere, have substantially affected the consumers' concerns towards environmental issues (Laroche, Bergeron & Barbaro-Forleo, 2001; Testa, Iraldo, Vaccari & Ferrari, 2013). In many product and service categories in the global marketplace environmental concerns are constantly shaping consumers' buying behavior. On one hand, by offering environmentally responsible services and products the companies are guiding consumers towards the path of environmental conservation. On the other hand, due the consumers' increased environmental awareness the companies are forced to further move themselves towards sustainable production by having to take into account the environmental criteria throughout their manufacturing processes. Finally, it is obvious that the producers and service providers cannot solve the environmental challenges without the consumers contributing in those by changing their consuming patterns or preferences (Laroche et al., 2001).

Besides airlines, their external stakeholders such as policy makers, aircraft manufacturers and other aviation industry associates including aviation fuel suppliers, are responsible in the first place for the industry's growth in a sustainable way. However, the air travelers' role in this sense cannot be under estimated as ultimately airline industry being demand driven they have the greatest impact on the outcome. Therefore further investigation on the airline passengers' attitudes and behavior towards environmentally responsible travel

is needed to be able to better understand the factors affecting their environmental behavior.

1.1 Purpose of the study and research question

The aim of this Master's Thesis is to investigate whether the airlines' environmental responsibility affects the airline passengers' behavioral intention to purchase. Moreover, it aims to identify the environmental beliefs and values that airline passengers hold about environmental responsibility in order to target them with an accurate marketing mix. In addition, the study aims to find out what different paths an airline could choose to differentiate in the Swedish market by highlighting their environmental responsibility in their brand image. The study is a quantitative marketing research, the sample population being adult Swedish airline passengers.

The starting point for this study is to find out to what degree airline passengers green behavior is extended in their traveling behavior. Particular focus will be directed towards the effects of environmental beliefs on airline passengers' intention to purchase.

The main research question is:
- Does the airlines' environmental responsibility affect Swedish airline passengers' intention to purchase?

The sub-questions are:
- What are the Swedish air travelers' valuations, preferences and perceptions regarding environmental air travel?
- What are the most responsive segments for this cause?

The aim of this thesis is also to assist the case company Finnair overcome obstacles related to their sustainability marketing by offering them a sustainability marketing-mix that in essence highlights some of the most significant issues to take into consideration when marketing their environmental responsibility.

This study mainly addresses to marketing, and moreover to consumers' purchasing intentions. In order to gain comprehensive understanding of the process about buying behavior and affecting factors, the study adapts a socio-psychological perspective as well.

1.2 Finnair and building blocks of its sustainability agenda

Sweden's importance as a neighboring market for Finnair dates back to 1924 when Finnair started its first flight operations from Helsinki to Tallinn and Stockholm (Finnair Plc a., 2015). These two cities enabled that time the fastest

access from Finland to Central Europe's continent and adjacently to Scandinavia. Currently Finnair aims to gain a stronger position within the Swedish market, that has population of 9,6 million inhabitants (Country Meters, 2015). Finnair's target segment in this campaign is travellers from Sweden to Asia. Finnair offers them flights via Helsinki hub to eleven major cities in Asia. One of Finnair's strongest arguments is that they offer shortest routes from Sweden to Asia, whereas Finnair's geographically closest competitor Scandinavian Airlines (SAS) service offering requires their passengers to travel towards geographically opposite direction (in most of the cases), as Copenhagen functions nowadays as SAS' main hub for their long haul flights. Thus, by being able to offer shorter alternative via Helsinki Airport with more modern aircraft fleet than their competitor, Finnair considers using environmental responsibility as part of their future marketing proposal in Sweden. However, deployment of this plan requires careful research, consideration and assessment from the company to find a proper angle to approach this initiative. In the first place, the company aims to gain a better understanding in two focal issues: do they have the needed pledge and the empowerment to promote themselves as an environmentally responsible airline in Swedish airline passengers' eyes, and if they do, what is the feasible way to implement it?

Finnair has started their environmental management activities in the 1980's. The company discloses their environmental impacts in Global Reporting Initiative and Carbon Disclosure Project reporting. The company reports that they participate in industry wide associations, such as IATA and ATAG, which both contribute in development of advanced ecological solutions in aviation practices and innovations. According to their annual report, Finnair's objective is sustainable, profitable growth pursued in harmony with surrounding society and the environment (Finnair Plc b., 2015). Their sustainability strategy points out that they aim to maximize the economic and social value of their business, where as they strive to minimize their environmental impact. Moreover, due to their optimal geographical location and their existing network, the company is able to offer the fastest connections within the Northern Hemisphere, which in turn supports their sustainability agenda. Environmental responsibility, as such, is not part of Finnair's core strategy. In principle it is assumingly integrated into the functional areas of the organization through the EMS. (Finnair Plc c., 2014)

Finnair's environmental roadmap defines the strategic milestones and goals they intend to achieve by the target year of 2017. One of the most significant milestones regarding their enhanced environmental performance takes place during years 2015-2023 when Finnair will be investing more than 2 billion euros in renewal of their long haul aircraft fleet. The company will acquire 19 Airbus 350 XWB aircraft that will significantly reduce the environmental burden in terms of amounts of CO_2 emissions, NO_x and noise. The future use of biofuels is also included in Finnair's Environmental Roadmap. In addition, the company claims that with their independently third-party assessed Environmental Management System (EMS), developed especially for airline use, they are nowadays able to take more structured and comprehensive approach to their environmental management and hence, drive continuous improvement in their environmental performance through their environmental targets. (Finnair Plc b., 2015).

1.2.1 Market positioning in Sweden - Finnair vs. SAS

As earlier stated, seeing significant growth potential in it, Finnair aims to increase their market share in the Sweden primarily with regard to their Asian network. According to CAPA Centre for Aviation's analysis (2015) 33.6% of Finnair's available seat kilometers (ASK) are offered on routes to North East Asia and 20.4% on routes to South and South East Asia. SAS serves solely North East Asia, their ASK offering to this market being only 6.4% out of their total ASK (Fig. 1). In practice, this means that Finnair offers four times more seat capacity to Asia, than SAS. All SAS' North East Asia flights are serviced from Copenhagen, except their Hong Kong service that started operating from Stockholm in September 2015. Even though SAS offers a very limited variety of routes to Asia, Sweden accounts as a source market for Finnair's Asian routes only for 9%. (CAPA – Centre for aviation, 2015).
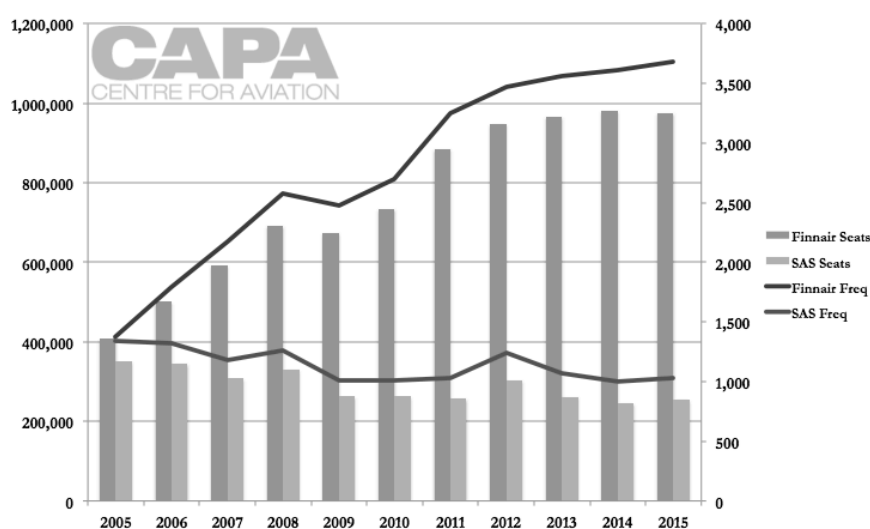
FIGURE 1 Finnair's and SAS's Europe-Asia ASK 2005-2015 (CAPA - Centre for aviation, 2015).

Another competitive advantage Finnair has over SAS is the age of its fleet. The current average age of Finnair's fleet is 10.5 years, and by replacing its A340 fleet with the new A350 aircraft by 2016, the average age of the entire fleet will drop by some more years. SAS has a fleet with average age of 12 and the age will still increase for couple of years, as their fleet renewal shall take place starting no earlier than 2018. (CAPA - Centre for aviation 2015.)

1.3 Earlier investigations on airline passengers' green behavior

The air travelers' environmental behaviors and attitudes with regard to their intention to purchase have not evoked considerable interest among researchers. However, the few studies that have been performed in this field provide valuable insights into this Master's Thesis. As airline industry is moving towards ze-

ro emissions growth future, a number of airlines are considering of (or already) offering their passengers a possibility to compensate CO_2 emissions from their flights (IATA b., 2013). Based on the findings of their study, van Birgelen, Semeijn and Behrens (2011) claimed that air travelers who evaluate the air industry's environmental impact being significant, are more willing to compensate them. This result supports the finding that Testa et al. (2013) made in their study pointing out that neither environmental knowledge, nor concern itself does not necessarily increase the purchase intention. Instead, they claim that the product specific, accurate information about the product's (or service's) environmental perfomance, tend to lead the consumers to make more reasonable and concious green choices (Testa et al., 2013).

In their study exploring airlines' green images Hagmann, Semeijn and Vellenga (2015) showed that air travelers do not make their purchasing decision based on the airline's green image, although they do clearly perceive differences in the airlines enviromental images. Whereas, Hagmann et al (2015) found that airline's green image still seemed to have some impact on their airline choice, although it was not the primary driver when booking the flight. According to their study, the top three determinants for choosing the flight were: direct flight, safety and travel time (Hagmann et al., 2015). The survey was conducted at Dusseldorf airport, thus the results reflect factors related to short haul traveling (e.g. in long haul traveling to many destionations there may not be even possibility to choose direct flights). Furthermore, the respondents of the survey in certain aspects showed favorable attitude towards the German (or European) operators in their home market. The Dusseldorf airport serves primarly intra-European flights and therefore majority (83,9%) of the passengers participating the survey were Germans.

According to Hagmann et al (2015), air travelers' willingness to pay (WTP) for an environmentally responsible air travel showed to be moderate. Less than 50% of the respondents indicated that they would be willing to pay 10% more to compensate their individual share of CO_2 emissions from their flight. However, if they had to choose between paying additional fee for either their comfort during the flight or compensating their carbon emissions, they would choose to acquire additional comfort for themselves. The least significant determinants for making the purchasing decision were FFP membership, airline's green initiatives (biofuels, recycling etc.) and willingness to compensate CO_2 emissions. An interesting finding was also that the airlines' pro-environmental performance was perceived higher by those who had flown with the particular airline, than those who had not. Also LCC's environmental performance was ranked lower than the legacy carriers' athough they tend to fly with modern fleets and high density seating. The incosistency in this respect refers to either the respondents lack of knowledge with regard to the factors that impact airlines' environmental performance the most. Alternatively, the legacy carriers may have better communicated about issues related to their environmental management and achievements in it. Lee, Hsu, Han and Kim (2010) stated in their study that the *feelings* an individual have toward an object define also the environmental friendliness of that object. Moreover, Hagmann et al. (2015) in their study tested this claim by measuring airline passengers' general attitude (GA) and perceived environmental friendliness (EF) towards 12

pre-selected airlines. They found that there was a strong correlation between GA and EF, supporting the fact that EF received systematically lower scores than GA for each airline (Hagmann et al., 2005, p. 41).

Based on the market survey Finnair conducted among Swedish airline passengers in year 2012, Finnair was generally perceived to be 'an ecological' airline. However, according to respondents an airline's environmental performance was clearly not an important denominator in their airline selection (Dagmar Ab, 2011). The results revealed that out of all airlines represented in the survey, SAS was holding an unquestioned, favorable position among the Swedish air travelers perceived as a traditional, *ecological* airline with a good Frequent Flyer Program (FFP) in place. The survey clearly showed that all other European flag carriers, including Finnair, were clustered in the same sector on the canvas, SAS having a clear dominance over all of them. An interesting finding regarding environmental responsibility was that if SAS were withdrawn from the Swedish market, according to the survey, Finnair would be its strongest successor due to its attractive FFP and pro-environmental performance according to the Swedish air travellers. However, it is worth noticing that these factors were not the primary drivers in their airline selection. The three most important criteria for choosing an airline for the respondents of this study were low price, easiness to book a trip and good reputation of the airline. (Dagmar Ab, 2011).

In the light of the previous researches involved in this sub-chapter it may be concluded that although environmental responsibility has not been the decisive factor in the air travelers airline selection, up to certain degree it has had an impact on it (Hagmann et al., 2015 and Dagmar Ab, 2011). The studies also indicate that airline passengers have showed moderate interest in their WTP for environmentally responsible travel through carbon off-set programs (Birgelen et al., 2011; Hagmann et al., 2015). Limitations of these researches proved to be that they were mostly quantitative studies explaining only surface of the research phenomena. Pro-environmental behavior (PEB) being such a complex phenomena, by conducting interviews the reserachers could have been able to acquire more information to understand the underlying factors related to the research problems. The studies also showed that geographical location (where the study was conducted) played a significant role in the outcome of the study.

Hence, three hypothesis were formed based on previous studies on airline passengers pro-enviornmental behavior:

H1: Environmental responsibility is not a decisive factor in air travelers airline selection.

H2: Airline passengers are not aware of the connection with environmentally responsible flying and flying with modern fleet.

H3: Brand recognition enhances airline passengers' perceptions on the airline's environmental responsibility

1.4 Motivation for the research

Existing literature on assessing airline passengers' purchasing intentions along their customer journey is abundant, whereas literature on how environmental responsibility affects their purchasing intentions is rather limited. This may be explained by the fact that very few, if any of the airlines, have so far promoted their environmental responsibility in their marketing campaigns. Moreover, none of the airlines so far have claimed to hold the leadership in environmental responsibility within the industry. The reason for this may reside in various challenges they encounter with sustainability marketing. Firstly, they may deem to lack *legitimacy* – airlines may deem that the energy intensity and noise emissions of their operations prevent them from promoting their eco-initiatives in a fear that this could be perceived as deceptive green-washing in the eyes of their customers and other stakeholders. Secondly, without a proper *market research* and segmentation, the organization is not able to develop a comprehensive sustainability marketing mix for the base of their sustainability marketing strategy. Moreover, the integration of sustainability marketing strategy requires that the organization has integrated its corporate sustainability statements and codes of practice into their processes and overall strategy (Belz & Peattie, 2012). Finally, in pursuit of developing sustainability marketing efforts, the airlines just as any other organizations, tend to end up to premises that they are unfamiliar with. Thus they may be insecure of facing issues and questions related to their sustainability agenda they may not have *explicit answers* to (Charter, Peattie, Ottman & Polonsky, 2002).

The personal motivation for this research stems from the author's professional experience from the aviation field and from the future research aims. The author has been working in the aviation field for over 25 years and is currently responsible for the environmental management at Finnair. Sustainability marketing has been in the author's particular interest throughout her studies. She aimed to gain a better understanding of the airline passengers' perceptions on the airlines' environmental responsibility, and ultimately within this context, what are the essential building blocks for a successful marketing campaign and consequently for building a greener airline brand image.

2   CONSUMERS' INTENTION TO PURCHASE GREEN PRODUCTS AND SERVICES

This chapter forms the first part of the theoretical framework for the thesis. The first sub-chapter sets the scheme for the social perceptions on human's relationship with the natural environment by introducing some of the most influential paradigms that aim to explain the current consumer behavior: Dominant Social Paradigm (DSP) and New Environmental Paradigm (NEP). Adjacently, it then introduces the Ajzen's Theory of Planned behavior that provides the theoretical framework for this thesis, providing the essential constructs that affect consumers' behavioral intentions. Finally, the purpose of this chapter is to pull together theory and factors that have an impact on the constructs that drive pro-environmental behavior, and moreover, how they affect customers' purchase intentions. Understanding consumers's green behavior, as well as factors affecting their purchasing decisions, helps the marketer to develop effective green marketing stragegies that will be discussed in Chapter 3.

2.1   Dominant Social Paradigm and New Environmental Paradigm explaining consumers' perceptions

Marketers adopt green marketing to enhance their brand image, build trust and create value, among many other things (Saleem, Khan and Alam, 2015). Companies' environmental marketing strategies can also seen as an implication of a larger underlying institutional mechanism where the ultimate target is to engage consumers to environmental responsible consumption behaviors, since after all, consumers with their choices make the actual change in pursuit to sustainable behavior. The mechanisms that drive the current consumer behavior evolve from the industrial revolution that took place in beginning of the 20th century. Pirages and Erlich (1974) introduced a paradigm called the Dominant Social Paradigm (DSP), what they argue are the set of norms, beliefs, values and habits that has been governing the modern world's social perceptions since the early 20th century. The concept relies on the assumption that economic growth

and increased production as well as consumption guarantees the welfare of all those involved (Kilbourne, Beckmann & Thelen, 2002). Moreover, Cotgrove (1982) impressed that the dominance of DSP is not based on the wide spread collective acceptance and belief in the included constructs. Instead, he states that the dominance of the DSP lies in the hands of the powerful groups such as corporate enterprises, financial institutions and governmental organizations that base their institutions' justification and legitimacy on this paradigm. However, the shortcoming of this paradigm is that it does not take into account the limits of growth, which translates to the needs of the future generations. In response, Dunlap and van Liere (1978) developed one of the first sustainable counterparts for the DSP called the New Environmental Paradigm (NDP). This concept is based on the assumption that individuals' environmental attitudes derive from their perceptions on ecological problems, environmental concern and ecological condition. Moreover, by combining these two paradigms, Kilbourne et al. (2001) examined the relationship between DSP, environmental attitudes and consumers' willingness to change their environmental behavior. The study found that increased belief in DSP decreases one's conveyed concern on the environment. Moreover, as one's belief in NDP increases it increases their willingness towards changes in consumption and other pro-environmental changes in their behavior (Kilbourne et al., 2001). This indicates that there is a larger underlying mechanism that affects the environmental concern. In practice it underlines the importance of embedding and integrating sustainability in each dimension of the DSP throughout all institutions involved in it. This would be essential in order to foster a fundamental change in consumers' environmental consciousness, companies being a significant part of this mechanism. These paradigms partly explain the inconsistency and incoherence in consumers' environmental behavior, which will be further discussed in this study. Leading economies, like U.S have found that even powerful and consistent efforts in offering mechanisms changing society towards pro-environmental consumption (e.g. President Obama's efforts to put 1 Million advanced technology vehicles on road) are not simple tasks. As long as there are alternatives to choose from, it is the individual consumer's behavior that leads to the decision how they respond to the offered proposals.

2.2   Theory of planned behavior explaining green behavior intentions

Over the past decades, social science has contributed significantly in the research on PEB. Cleveland, Kalamas and Laroche (2005) in their study indicated that to best serve its business purposes the companies should essentially and effectively understand how the consumers' attitudes an environmental dispositions affect their consuption patterns, and consequently, intentions to purchase.

The renown theory of reasoned planned behavior (TPB) by Ajzen (1991) offers a widely used framework in studies predicting behavioral intentions. The theory was introduced in 1985 and it rooted in the theory of reasoned action (TRA) by Ajzen and Fishbein, which after 17 years of development was intro-

duced in 1980 (East et al., 2013). The essential difference between these two theories is that TRA predicts the behavior assuming that the individual has full volitional control, whereas TPB takes also into account the eventual external constraints (Ajzen, 1991) and is one of the most influential theories to predict social behavior. TPB assumes that behavioral intention is primary antecedent of behavior, and that defined factors representing different beliefs (attitude, subjective norm, perceived behavioral control) determine to what extent the person wants to perform the behavior (De Groot & Steg, 2007).

The theory was built on three determinants they believe are the most essential factors determining an individual's intention and consequently behavior: behavioral, normative and control beliefs. *Behavioral beliefs* are *"beliefs about the likely consequences of the behavior"*. These beliefs reflect to the expected the consequences resulting from this behavior and its commonly perceived desirability. Based on these beliefs one makes the evaluation whether engaging with the behavior supports or impedes his personal objectives. Subsequently, individuals create certain *attitudes* towards these respective behaviors. Normative beliefs, in turn, represent *subjective norms* that are *"beliefs about the normative expectations of others"* which refer to social pressure to engage with the behavior. The social pressure increases and decreases depending on what the reference group's expectations are towards the behavior. Also the degree of one's dependency to these groups and willingness to comply with their reference group's norms defines their intention to engage with the behavior or the subjective norm itself. Finally, *control beliefs* are *"beliefs about the presence of factors that may facilitate or impede performance of the behavior (control beliefs)"*. This perceived behavioral control (PBC) controls the person's belief about the possibilities to perform the behavior. Ajzen's assumption was based on the hypothesis that the more limited one perceives his PBC is, the less obvious it is that he would perform the behavior. Moreover, in case a person perceives that he does not have *any* control to perform the behavior in question, PBC can affect behavior directly by overriding the intention. Demographic variables, as well as factors describing person's social status, income or personality characters are fundamentally not included in explaining behavior other than as external variables. (Ajzen & Fishbein, 1980; De Groot & Steg, 2007, p. 1818; Ajzen, 2011; Fig. 2.)
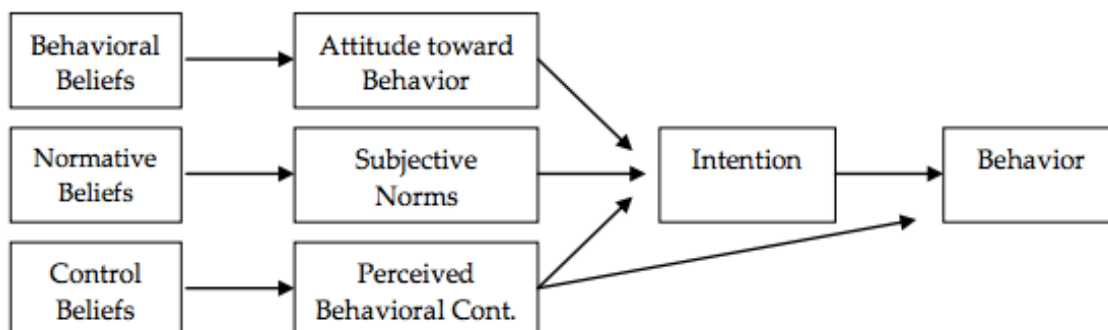
FIGURE 2 Theory of planned behavior (Ajzen, 2006).

Based on the theory's adequate reliability that has been tested already over 30 decades in number of researches, researchers and marketers widely support this approach. The TPB has been effectively applied in various studies to predict also green behavior in different contexts, such as choosing travel modes (e.g. Bamberg & Schmidt, 2003; Heath & Gifford, 2002), intentions to purchase environmentally sustainable products (e.g. Kalafatis, Pollard, East, & Tsogas, 1999; Aman, Harun & Hussein, 2012), on recycling behaviors (Tekkaya, Kilic & Sahin, 2011; Nigbur, Lyons & Uzzell, 2010), and intentions of air travelers to compensate the CO_2 emissions from their air travel (Hagmann et al., 2015). However limitations related to the theory's applicability have been found as well (e.g. Kalafatis et al., 1999) claiming that to gain appropriate results by using TPB, the theory should only be employed in studies conducted in established markets. From Kalafatis et al's (1999) experience, applying the theory in developing markets showed inadequate results.

While TPB has been found to be a robust theory to predict one's intentions and adjacently behavior, scholars find some shortcomings in it too. Based on their meta-analysis Armitage and Conner (2001) suggested that subjective norm should be replaced with self-identity construct referring to social-identity theory by Tajfel and Turner (1986), as according to their study subjective norm occurred to be a weak predictor in the TPB. Nigbur et al (2010), in turn, claimed that depending on the context the use of personal norm, instead of subjective norm, could be more productive as the significant others cannot be reliably identified in all contexts and in all of the cases.

Offering a reliable and tested framework for measuring intentional behavior, TPB was chosen to be forming the theoretical framework for this study. This study applies pro-environmental purchase intention as a dependent variable and it focuses on investigating the factors that influence pro-environmental purchasing behavior.

2.2.1 Modifying the Theory of Planned Behavior model

Ajzen (2006) concludes that *subjective norms, attitudes* and *control beliefs* are the three constructs together determine the behavioral intention and its positive or negative strength when the opportunity occurs. Despite the model's proven explanatory power, earlier researches have shown that it is not capable in providing general conclusions about different predictors, especially related to environmental behavior or beliefs of specific target groups (De Groot & Steg, 2007). Therefore (Ajzen, 2011) agrees that including predictors in TPB is permitted providing that these added altering paths show adequate and significant contextual enhancement and variance in predicting the intention or behavior in question. In addition, this requires that original TBP constructs are further included in the application (Ajzen, 2001). Examples of these extensions have showed success in improving prediction of the intention (e.g. Bansal & Taylor, 2009; Han, Hsu & Sheu, 2010).

Some of the previous researches using TPB model have identified brand image and past behavior (Ajzen, 1991; Bansal & Taylor, 1999; Chen & Chang, 2008; Hagmann et al., 2015; Han & al., 2010) being considerable determinants with regard to purchasing intentions. The encouraging results proving that past

behavior constructs have been significant detectors predicting airline passengers' buying intentions and behavior, support using them as additional determinants also in this study.

While normative referents are considered to be the significant others approving or disapproving one's behavior, in this study their impact on person's target behavior is examined through self-identity. As earlier mentioned, in all contexts the significant others cannot be easily defined. This study incorporates the social identity theory by Tajfel and Turner (1986), which suggests that people tend to join to groups and adapt their norms and roles to be an archetypal group member. Therefore, a person perceiving himself e.g. environmentally conscious reflects his groups norms and roles in terms of validating his membership in the group, as well as improving his self-concept (Tajfel & Turner, 1986). Another noteworthy finding about self-identity that is that a person's tendency to adapt his social role when intending to perform a behavior increases significantly in case he has performed them earlier (Charng, Piliavin & Callero, 1988). This further supports earlier discussion on extending TPB with determinant of past behavior. Hagger and Chatzisarantis (2006, p. 754) in their study found that subjective norms were not significant predictors of intentions, whereas self-identity seemed to have a strong impact throughout a range of social behaviors. Moreover they underlined that subjective norms and self-identity have different roles in predicting normative behavior; subjective norm relates to the significant others' beliefs, whereas self-identity reflects how people live up to their social roles (Hagger & Chatzisarantis, 2006). Thus, when predicting airline passengers' green intentions to purchase in normative belief context, the author bases her perceptions on the grounds that peoples' salient normative beliefs towards green behavior rise from their self-concept and role as a group member instead of subjective norms. (Fig. 3.)
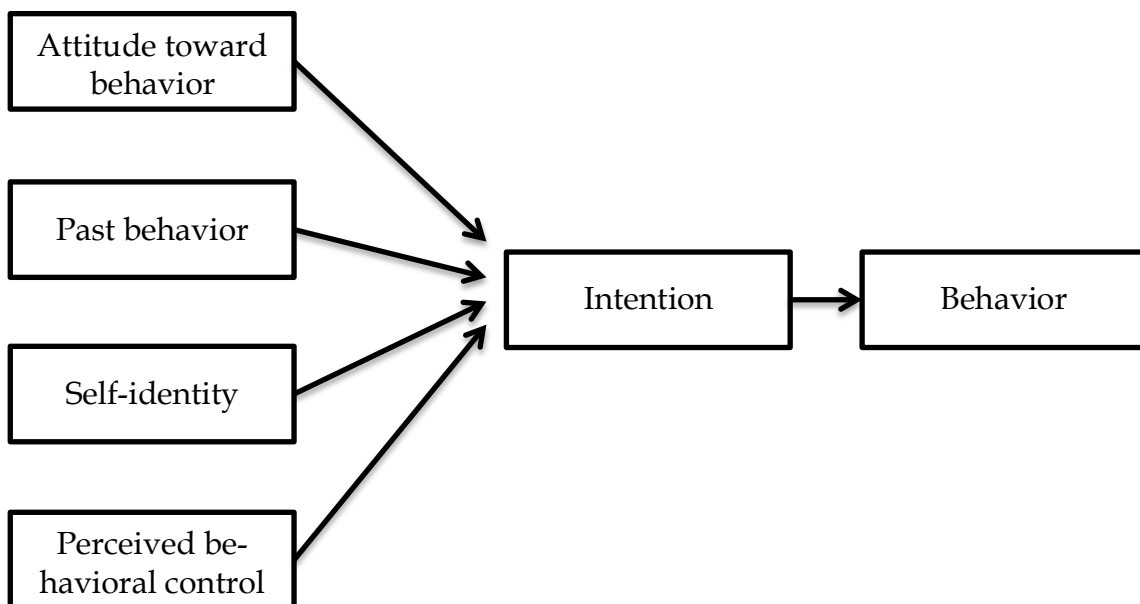
FIGURE 3 Modified Theory of Planned Behavior model used for the purpose of this study.

2.3 Pro Environmental Behavior and associated variables

Examinining more closely different associated variables that affect PEB helps to gain a better understanding of the issue. Despite all the efforts that researches undertaken to find an appropriate framework for PEB, no success has been achieved in this area (Kollmuss & Agyeman, 2002). The complexity of this issue may be found also in the rather broad definitions that have been used to describe PEB, such as: *"individual behaviors that provide shared environmental benefits"* (Turaga, Howarth & Borsuk 2010, p. 211). In context of consumer behavior PEB reflects consumer behavior through consumer product life cycle (purchase, use, post-use) and domestic environmental management (Peattie, 2010). Up to certain degree it also describes person's motivation towards environmental issues (Peattie, 2010). According to Turaga et al. (2010) PBE has been extensively studied in social sciences and, in particular, different theories of social psychology have explored the influence of different internal factors (e.g. norms, attitudes, motivations, values) as well as external factors affecting it. Based on their meta-analysis covering over one hundred studies on PEB Hines et al. (1986) identified several constructs that they found to be significantly related to PEB that will be discussed more in depth in this sub-chapter. Among several models of predictors of environmental behavior the "*Model of Responsible Environmental Behavior*" gives an extension to TPB as it is based on that particular theory (Hines et al., 1986). It has been argued to offer a more sophisticated and comprehensive outlook to the factors related to PEB than TPB model itself does, hence it is therefore chosen to be discussed in this study.

Knowledge of issues has been acknowledged in many studies to be a fundamental factor for PEB (e.g. Arbuthnot, 2009). Scholars use also term *ecoliteracy* for this accumulated ecological knowledge that a person needs to be familiar with in order to identify and understand the environmental aspects and impacts that result from different activities (Pilgrim, Smith & Pretty, 2007). Knowledge of significant environmental impacts from the company's activities emphasizes the importance of communication from the corporate perspective point of view. Without the needed knowledge these impacts from e.g. aviation, very few airline passengers would know what are the environmental aspects that make some airlines more environmentally sustainable than others –or ultimately, do such airlines even exist. However, there are scholars who argue that different levels of knowledge may have different impact on PEB. General level environmental knowledge encourages people to act in pro-environmental manner, whereas Diekmann and Preisendörfer (1998) claimed that too specific technical information does not lead to same effect.

Moreover, *knowledge of action strategies* is about recognizing the accurate connections between consumers' consumption patterns, lifestyles and one's environmental knowledge in order to be able to avoid or mitigate the environmental burdens from one's everyday life (Hungerford & Tomera, 1986). For instance, van Birgelen et al. (2010) found in their study that airline passengers' willingness to compensate their CO_2 emissions increase with the knowledge of air travel's contribution on the climate change. However, all researchers do not agree that an individual's personal environmental action strategies would nec-

essarily lead towards enhanced PEB. In fact, some critics argue that this kind of thinking could lead the consumers to perceive that archetypal PEB, such as domestic energy saving or recycling of garbage, would mistakenly lead them to guilt free consumption and make them believe that by these actions they are already fulfilling their role in the environmental conservation (Kilbourne, Beckmann & Thelen, 2002). In addition, the critics state that all archetypal pro-environmental actions of proving PEB are so aligned with DSP that they are in fact encouraging consumers to increase their consumption (Princen, Maniates & Conca, 2002).

Locus of control (LOC) puts in test peoples' faith in their own impact of their pro-environmental actions (Hines et al., 1986). Social-psychology recognizes this concept also as *perceived consumer effectiveness* (PCE), which aims to explain one's belief on his control over the problem and up to what degree his own efforts count up to solve the problem (Veimer & Verbeke, 2006). Hines et al. (1986) argue that strong *internal* locus of control refers to individual's optimism and belief to make a shift with their pro-environmental actions. There have been studies supporting this behavior (e.g. Hooper, Daley, Preston & Thomas, 2008), and studies finding no correlation between internal locus of control and PEB (van Birgelen et al., 2010). Many attempts toward PEB fail when an individual perceives that his modest efforts do not result in any improvement regarding climate change or any other environmental problem. This takes place when an individual has *external locus of control* perceiving that the ability to perform any significant pro-environmental improvements is in the hands of more powerful instance (Hines et al., 1986). An example of this would behavior towards pollution of the Baltic Sea; many of those individuals consider taking actions in helping to improve its condition remain passive, as they conceive that their efforts would be meaningless as long as neighboring country stops to emit their sewage waters directly into the sea. Thus, they perceive that issues of this scale and severity are beyond their control and should be resolved by the governments.

Attitudes have found to be essential factors measuring pro-environmental motivations or intentions (e.g. Hines et al., 1986; Fietkau & Kessel, 1981; Ajzen & Fishbein, 1980). However, the connection between environmental attitudes, knowledge and behavior has found to be weak (Hines et al., 1986). This inconsistency, also called the *attitude-behavior gap*, will be discussed more in depth in this study.

Hines et al., (1986) also found that *verbal commitment* was a detector for PEB. By providing a verbal declaration about his actions regarding PEB, a person makes a 'promise' to himself and the target audience that he should keep in order to be credible and keep or even enhance his self-esteem. This being a logical argument, however, acknowledging individuals' discrepancy in what they indicate to do and what the actual outcome is, in concrete context verbal commitment may be found a rather incidental detector.

Finally, *individual sense of responsibility* refers to individuals' high degree of personal accountability. Hines et al. (1986) found that people with this kind of strong trait are likely to engage with PEB.

2.4   Who is the green consumer?

There has been vast number of conceptualization attempts for defining green consumer. Borden and Francis (1978, as noted in Lehmann, 1999, p. 34) suggested that "people who have satisfied their personal needs are more likely to act ecologically because they have more resources (time, money, energy) to care about bigger, less personal, social and pro-environmental issues". This broad hypothesis still shreds very little light on the topic as it covers a broad, yet diverse population in the more developed economies. For decades, researchers have aimed to identify a green consumer by examining different factors affecting their behavior. Vast amount of research have been conducted exploring people's attitudes, demographics and personality among many other factors, with conflicting results (D'Souza, Taghian & Khosla, 2007; Schwepker Jr. & Cornwell, 1991). Environmental concern is a stream that has also been widely assessed (Schwepker Jr. & Cornwell 1991; Ukenna, Nkamnebe, Nwaizugbo, Moguluwa & Olise, 2012). Depending on what the product or service offering is, as well as the context and stage of process when it is being marketed, the needs and wants of the green consumer vary depending on their segment, culture, traditions and eventually also how they perceive the green product or service offering (Saleem, Khan & Alam, 2015).

Due to the complexity of the issue and inconsistent results, the scholars have not been able to offer unequivocal answers to questions related to who the green consumers' are, nor how to measure their behavior. D'Sousa et al. (2007) in their study posed an essential question whether the green customers can be targeted in the first place. Based on their research they suggest that consumers embracing relatively consistent pro-enviornmental beliefs, show potential to green purhase intention. Instead of aiming to identify a sustainable consumer, Belz and Peattie (2012, p. 103) suggest that the marketer should focus on finding out "*under what circumstances and reasons and in response to what offerings buyers change their behavior towards sustainable consumption*". Finally, Peattie and Crane (2005) in their study claim that there is no use for a marketer to just target on the green consumers, but the mainstream. Based on these findings it can be concluded that the new green consumer could be anyone. Emery (2012) supports this view by arguing that new sustainable consumer has no specific consumer profile, which makes their targeting for marketers even more complicated. Therefore several researches have suggested that green marketing and consumer behavior should be examined case by case by focusing on the determinants that generally affect the behavior as well as industry specific behavior related to environmenal factors and intentions to purchase (Bradbury & Clair, 1999; Ottman, 1992; Chatterjee, 2009; Belz & Peattie 2012; Suchard & Polonski, 1999).

2.5   Variables affecting green purchase intention

There are several definitions for purchase behavior. Assael (2004, p. 216) sees it as *"the tendency to act on an object"*, whereas Schiffman and Kanuk (2010) approach the concept from a process point of view identifying it as the preceding act to the actual purchase decision. In general, consumers have basic needs to secure their living and social as well as emotional needs to broaden their well-being. The latter ones, social and emotional needs, the consumers then form into wants that the marketers are keen in responding to with variety of products and services especially in the mature markets (Peattie, 2010). Consequently, needs turn into wants and in pursuit of more convenient lives the consumers seek for solutions for them. Empowered by the tightening regulations and increased environmental consumer awareness, marketers are enforced to come up with new solutions and innovations to be able to fulfill the needs of an environmental conscious consumer.

In purchasing decision-making, consumers often tend to consult their peers or other sources they perceive reliable. The more significant the decision is from either social or economic perspective, the more likely they rely on others experiences and recommendations (East, Wright, & Vanhuele, 2013). Although word of mouth (WOM) is under consumers' control, marketers can easily affect it by formulating their messages in a way that influences consumers to discuss about it. The influence of WOM has been widely credited already before digitalization. Some studies have showed that through social media WOM has become even more influential than the traditional marketing (Trusov, Bucklin & Pauwels, 2009, p. 73).

What comes to customer loyalty behavior, it can appear in three ways: share, retention or recommendation (East et al., 2013). *Share of category requirement* (SCR) indicates to customer loyalty where the customer has spent significantly on one brand out of all brands within the product category. *Retention*, in turn, refers to a long-term loyalty to that particular brand. Finally, *recommendation* has been found a powerful recruitment mechanism that brings new customers to the business. Loyalty customers act as advocates for the brand, thus their recommendation and buying behavior decrease the need for the marketer to promote the brand. Adversely, loyalty members may also dislike the brand itself, but be active members for various reasons enjoying the rewards and benefits of the program. (East et al., 2013, p. 238-241.)

Brand loyalty is closely linked to sustainable behavior. Loyalty is based on trust between the consumer and the seller (or producer). When the trust has been achieved, a repeated purchasing behavior is being created. When shareholders invest in strong brands they expect to receive return on their investment. Similarly, consumers carefully select the brands and adjacently invest their money in buying the brand's products or services and become loyal customers. In return, they receive a product or service that fulfills their current need from a brand that supports or even enhances their social status, and moreover, may also communicate about their identity and issues related to their environmental and social responsibility. Brand knowledge consists of brand

image and brand awareness, both strongly linked to purchase intention. A consumer who perceives that the brand supports their values, or even exceeds them in terms of environmental sustainability, may be willing to pay premium price for it, however, often provided that he gets some distinct benefit from this behavior and that the environmental performance of the product is clearly communicated with e.g. eco-labels. (Testa et al., 2013.)

Some researches (e.g. Minton & Rose, 1997; Schiffman & Kanuk, 2010) have proved *attitudes* to be appropriate, or even crucial, predictors for green purchase intentions. They claim that favorable attitudes towards green products stimulate the consumers overall buying behavior to favor e.g. organic food stores when purchasing their groceries. Attitudes also refer to consistent tendency in buying behavior affecting their preferences regarding certain products or brands (Schiffman & Kanuk, 2010). Therefore the marketers should carefully study the consumers' attitudes to be able to form adequate predictions about consumers buying behavior. Schiffman and Kanuk (2010) furthermore claim that, reversely, consumer behavior can also affect attitudes. The renowned electric vehicle Tesla is an inspiring example of this. Still some years ago, electric vehicles (EVs) were not considered as credible competitors in the highly competed American automobile industry. In recent years the young company has taken the electric vehicle (EV) technology to the next level by developing electric cars that outperform their conventional gas-based competitors in many aspects. This sustainable product innovation has changed consumer behavior moving from traditional cars to EVs. Moreover, it has changed many car enthusiasts' attitudes towards environmentally sustainable driving. Thus, this innovative brand and product is currently not only changing consumer attitudes, but also the entire playing field of the automobile industry (Puranjay, 2013).

The consumers' *environmental knowledge* is basically based on their general knowledge and product specific attributes. A positive correlation between these two sources of information forms a significant predictor of environmentally responsible purchasing intention (D'Souza, Taghian & Khosla, 2007). However, consumers' positive behavior towards environmental sustainability does not always translate into purchasing behavior that would support buying of green products or services, nor punish the unsustainable choices (Carrigan & Attalla, 2001). Moreover, some studies show that communicating about products' environmental attributes is an efficient way to lead the consumers to make environmentally sustainable purchasing decisions (Testa et al., 2013). Again, there is clear evidence that negative information has stronger impact on consumers' attitudes towards a brand than positive information (Herr, Kardes & Kim, 1991, p. 247). Consumers tend to be ignorant and lenient to the exaggeration that occurs when marketers promote their conventional products' knowing that the information passed to them may only be partly true. However, their sensitivity to misleading information on products' professed environmental qualities, so called *green washing*, is significantly higher. Failing to use green washing in their information channels usually leads to lack of trust, even the product would otherwise perform better than its conventional competitors. (Emery, 2012, p. 225.) There is clear evidence about green washing's diminishing impact on advertising from the consumers' point of view (Peattie & Crane, 2005). This

tendency imposes additional strain on companies and marketers pursuing towards environmentally responsible operations and production.

Rohit, Trivedi, Jayesh and Jignasa (2015) found in their study that PEB and environmental locus of control (ELOC) together have a strong positive effect on consumers' willingness to pay for green products. Environmentally responsible buying behavior may also be enhanced by increasing availability of sustainable products of services, or by forming target groups and developing different marketing strategies for them accordingly. The target groups are often formed based on the degree of commitment to sustainable buying behavior. By dividing the green bloc based the consumers' behaviors, the marketers aim to more precisely communicate and engage them into their green product or service offerings. (Dailey, 2014.) Reserachers have also found some opposing evidence about how information infuences consumers' attitudes. Several studies claim that voluntary change is the most effective way to pursue sustainable behavior and lifestyle (Emery 2012). Responsiveness to sustainable behavior may derive from the consumers' tendency to choose energy efficient, less polluting and environmentally friendly products or services. Alternatively, the level of their environmental knowledge and environmental concerns may also influence this kind of behavior (e.g. Testa et al., 2013).

TABLE 1 Variables affecting green purchase intention

Study	Main findings on variables affecting green purchase intention	General theme
East, Wright & Vanhuele, 2013	People tend to rely on significant others' experiences in important purchasing decisions	Subjective norms
Trusov, Bucklin & Pauwels, 2009, p. 73	Along with social media, word of mouth has become more influential than traditional marketing	Subjective norms
East et al., 2013, p. 238-241	Loyal customers become advocates for the brand	Subjective norms & Past purcahse behavior
East et al., 2013, p. 238-241	Trust between seller and consumer creates repeated purchasing behavior	Self-identity & Past purchase behavior
Schiffman & Kanuk, 2010	Pro-environmental attitudes increase consumers overall green buying behavior	Attitudes
D'Souza, Taghian & Khosla, 2007	Positive correlation between general environmental knowledge and product specific attributes form a significant predictor of green purchasing intention	Perceived behavioral control
Rohit, Trivedi, Jayesh & Jignasa, 2015	ELOC associated with PEB increase consumers willingness to pay	Perceived behavioral control & Attitudes

2.6   Attitude behavior gap in PEB

Number of quantitative researches on PEB have proven a discrepancy between environmental attitudes and behavior (e.g. Rajecki, 1982). Peoples' will to do good to their environment is greater than their deliberate actions, as habits are often more powerful than our intentions (Becker et al., 2014). The reasons for this gap between attitudes and behavior vary: it may result dearth of information (resulting in eco-illiteracy), lack of sustainable alternatives, non-existing benefits, difficulty in changing behavior, change in peoples' attitudes over time, lack of person's direct experince to the behavior, or gap between existing social norms and PEB (Rajecki, 1982).

Many of the socio-psychological models related to PBE underline that people are not rational, nor likely to adapt in use all information that is provided for them (Kollmuss & Agyeman, 2002). Yet, the PEB models fail to incorporate individual, social and institutional limitations of humans (Blake, 1999). To narrow the gap between attitude and actual behavior Ajzen and Fishbein (1980) claimed that the researcher should focus on observing individual's attitudes related to that particular behavior in concern. They argue that by measuring attitudes towards behavior case by case, the researcher is able to find higher correlations between them (Ajzen & Fishbein, 1980). However, this method does not always lead to a successful analysis, as it is not taking into account any earlier mentioned limitations. Again, according to Diekmann and Preisendörfer (1998) attitudes have only a very marginal impact on PEB. This is rather conflicting and confusing argument, as we tend to believe that peoples values reflect their attitudes, and more over that we would pursue those values in our behavior. Figure 4 illustrates Diekmann and Preisendörfer's (1998) *low-cost/high-cost model*, which suggests that individuals tend to perform those pro-environmental behaviors that are the most "inexpensive" for them in broader sense such as time, convenience and efforts, i.e. not only in terms of financial costs.
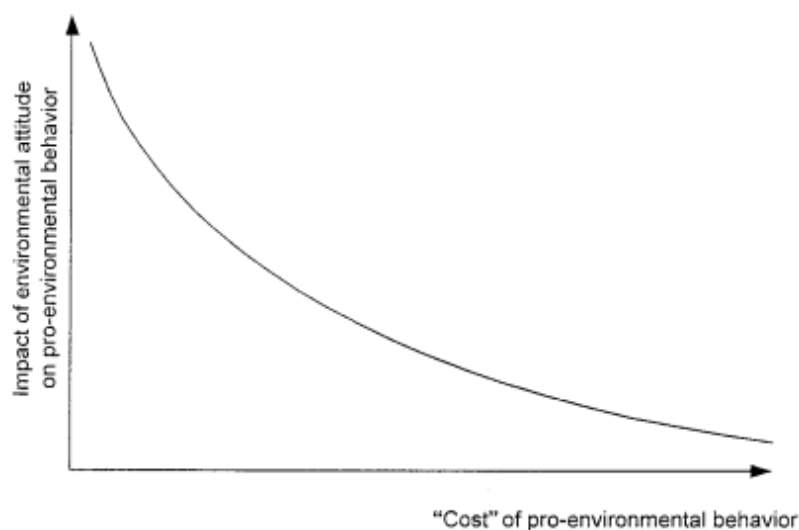
FIGURE 4 Low-cost/high-cost model of PEB (Diekmann and Preisendörfer, 1998)

For instance, when a person signs a petition in the Internet for opposing the set up of a new nuclear power plant, he discloses his negative attitude towards nuclear power and his concern towards environmental sustainability. This act demands relatively little effort from him and it is also free of charge. In the meanwhile he purchases his domestic electricity from a grid where a major proportion of the power is produced at a nuclear plant, instead of purchasing electricity generated from natural sources. This example of discrepancy shows that despite the attitude, when the switching cost is high, an individual is reluctant to behave in a pro-environmental manner. This allows us to expect that the correlation between PEB and is higher when the switching cost is low. By contrast, when both environmental attitude and behavior are already part of consumers' life style, they are positioned the upper left part of the axis. An example of this kind of "low-hanging fruit" is the paper recycling for Finns. Finland has been an early adapter of paper recycling due to the advanced paper recovery technics that the industry has had in place for decades (Finland's Ministry of Foreign Affairs, 2013). However, the current 92% rate of paper being recycled by the consumers may initially owe more to the local traditions of paper recycling inorder to support the national paper industry and pulp paper production, than any particular environmental behavior.

In a research conducted by Defra (2008, p. 8) in Great Britain people's common motivators for PEB in their everyday lives included *emotional wellness factor, social norms, individual benefits (such as healh and monetary), ease and sense of community.* The perceived obstacles, in turn, for rejecting or not engaging in PEB were *behavioral change, difficulties or misunderstandings in identifying sustainable products, lack of trust or knowledge, disinterest and indifference.* What comes to indidviduals self-development adapting pro environmental behavior requires the same kind of efforts and active thinking as any other change in behavior to replace existing activities. The shorcomings of New Year resolutions often result from lack of functions that reinforce the changed behavior and consequently prevent it to become an automatic activity requiring less energy. Thus, the replacing behavior needs to be easily adapted and convenient and supported with a reward (Arbuthnott, 2009). Duhigg (2012) illustrates the formation of automatic behavior with the habit loop (Fig. 5). An environmental cue, such as positive reminder or instruction, directs consumers to the desired behavior. It should gradually become a routine that is finally rewarded in order to keep the behavior repeating (Duhigg, 2012).

Cue   Routine

Reward
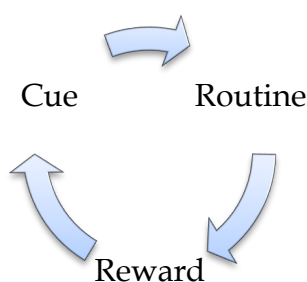
FIGURE 5 Formation of automatic behavior: the habit loop (Duhigg, 2012).

Social desirability bias may also lead to discrepancies. This takes place e.g. when respondents filling in a questionnaire do not answer what they actually think, but instead to protect their image they choose answers what they presume would be commonly accepted (Fisher, 1998). Thus in surveys using self-reported measures this behavior has an undesirable effect on the results.

3 INCORPORATING GREEN STRATEGIES INTO MARKETING

Sustainability marketing mix offers an airline the needed tools to respond to different needs and characters of airline passengers by building a suitable service product concept for environmentally conscious buyers, and eventually increase its revenues with this concept. The aim of this chapter is to introduce the tools and possibilities that sustainability marketing-mix can offer to a marketer in terms of targeting consumers with sustainability marketing offerings.

3.1 Turning socio-ecological problems into competitive forces

Extreme weather occurrences and other issues related to climate change have gained global attention in media especially during the past decade. As socio-ecological concerns arise among public, it tends to have an impact on the consumer behavior (Belz & Peattie, 2012). This is an essential implication for a marketer to consider for the fact that when socio-ecological concern becomes a political issue, it often results in standards and laws that further regulate the product and service offerings. Therefore, according to Dyllick et al. (1997) ecological as well social problems can be addressed to indirect and direct sustainability transformation processes. (Dyllick, Belz, & Schneidewind, 1997).

All airlines operating to and within the European Union are involved in an indirect sustainability marketing process through European Union Emission Trading System (EU ETS). Followed by the widespread discussion on air traffic's CO_2 emissions that count up to three% of total EU's CO_2 emissions, the European Union (EU) took action in 2007 to cut emissions from aviation by making an initiative to apply EU ETS to all EU and non-EU airlines. This market-based measure grants each airline a certain amount of tradable carbon credit allowances per year. Airlines are subject to acquire any exceeding credits from the carbon market. Likewise, they may also trade their unused credits to other ETS participants. (European Commission, 2015).

Thus, with these market-based measures EU ETS has forced airlines to find all possible ways how to mitigate their CO_2 emissions on permanent basis. To achieve best possible fuel efficiency, in one hand the airlines pursue for higher passenger and cargo load factors, and on the other hand they work hard to reduce the so-called 'dead weight' of the aircraft. At the same time, the pressure has similarly affected aircraft and engine manufacturers whom, in turn, are obliged to make significant investments in developing more fuel-efficient aircraft for marketers, such as Finnair. In recent years the company has made Finland's second biggest industrial investment ever (worth approximately 2 billion €) by ordering 19 new ecologically efficient Airbus 350 XWB aircraft. These aircraft are 25% more fuel efficient than the previous generation A340 aircraft. (Finnair Plc. b., 2015).

Apart from that, the marketers may draw the public attention from a socio-ecological issue to how the issue is resolved by the company. Combustion of fuel being the most significant environmental aspect for an airline is an example of this. As the public concerns started rising around global warming and CO_2 emissions, the International Air Traffic Association (IATA) that represents 250 airlines in the world came up with a pledge stating that the aviation industry has set a goal to reduce their emissions by annual 1,5% until year 2020, and furthermore cut their emissions to half by year 2050 from 2005 level (IATA b., 2013). To support this industry wide objective, most of the legacy airlines nowadays actively communicate their fuel efficiency efforts in their sustainability reports, company websites and some even in their marketing communications.

3.2   The evolution of sustainability marketing mix

Looking at the evolution of marketing, the responsible marketing has gone through several phases. It started from social and societal marketing in the 1970's that included various corporate social initiatives, such as corporate social marketing, cause marketing, philanthropy, community volunteering and responsible business practices (Kotler & Lee, 2005). Besides enhancing customer satisfaction, societal marketing aims to increase public standard of living that on the other hand also serves the organizations by meeting their goals and social responsibilities (Charter, Peattie, Ottman & Polonsky, 2002).

Ecological and green marketing followed social and societal marketing by addressing to issues that could solve ecological problems such as pollution and focusing overall on enhanced corporate environmental performance (van Dam & Apeldoorn, 1996). Finally in the end of the twentieth century customers were moved into the core of the marketing concept and closely linked with social and environmental sustainability issues that relate to the service or product offering. This approach includes a remarkable aspire to build and maintain socially and environmentally sustainable customer relationships (Kotler & Lee, 2005). According to Belz and Peattie (2012), sustainability marketing is to endure forever and to meet customer needs by being ecologically oriented, viable, ethical and relationship-based.

3.3   Sustainability marketing mix

One of the most renown definitions of modern marketing strategies from El-Ansary (2006, p. 274) states that *"Marketing strategy is defined for our purpose as the total sum of the integration of segmentation, targeting, differentiation and positioning strategies designed to create, communicate and deliver an offer to a target market."* This statement includes the three traditional 'C's of marketing: customer, company and competitors. Furthermore, it takes into account some other essential building blocks of generic marketing-mix: segmentation classifies the buyers by their interests, behaviors or potential needs, whereas targeting helps the company to focus their marketing efforts and offerings to the aimed customer segments. (Kotler & Armstrong, 2010.)

Differentiation, in turn, derives from the product's unique qualities that cannot be easily copied by the competitors. Finally, all these activities together form the company's or its offering's differentiation and positioning in the market. They represent also the elements of what a brand is made of. (Kotler & Armstrong, 2010.)

3.3.1 Traditional vs. sustainability marketing mix

After having placed the customers into the core of the marketing concept, many marketers abandoned the 'four P's of marketing (product, price, place and promotion; Table 1) as those were perceived to represent solely the marketers' viewpoint. By contrast the 'four C's (customer solutions, customer cost, communication and convenience; Table 1) were seen to better substitute the traditional marketing mix, by better taking into account the customers' standpoint and classify the sustainability marketing mix based on their needs. (Belz & Peattie, 2012; Kotler, 2003). Moreover, Kotler (2003) states that the most successful company will be the one that succeeds to satisfy customer needs by still managing them in a convenient and cost efficient way and by harnessing efficient communication channels stay closely connected to their customers.

TABLE 2 Traditional vs. Sustainability marketing mixes (Belz & Peattie, 2012; Kotler, 2003).

Traditional marketing mix	Sustainability marketing mix
•Product •Price •Promotion •Place	•Customer solution •Customer cost •Convenience •Communication

3.3.2 Customer solution

Customer solution aims to bring the focus from products or services to the entire consumption process from customer's viewpoint – how to solve the customer's problem, while improving the marketer's social and environmental performance at the same time. This in practice means that to succeed in the sustainable services market, besides satisfying the customer need, the airline should take in to account both environmental and social aspects of its service. Thus, thorough examination and evaluation of the service's environmental impacts is essential. The marketer has to be able to show significant ecological improvements, superior quality, as well as pursuit for further continuous improvement in its service offering compared to a conventional corresponding service. (Grant, 2007; Emery, 2012.)

Market positioning of a product or service is based on its perceived technical performance and eco-performance in the eyes of the customer (Rebel, 2011; Peattie, 2002). To become a 'green champion' in the market the company needs to actively develop and promote their offering's eco-performance. In Finnair's case this would imply to communicating and demonstrating the improved environmental performance of their service offering (fuel efficiency, EMS and developments in the infrastructure), as well as about enhancements in their technical performance (new eco-efficient fleet i.e. A350 aircraft). By offering technically advanced, environmentally responsible customer solution, such as flights with modern fleet i.e. less CO_2 emissions, they are able to improve their eco-positioning in the eyes of the consumers. Enhanced technical performance of an aircraft becomes a customer solution for those green customers and firms who account (and report) their CO_2 emissions. The table below illustrates the firm's positioning from the customer perspective with regard to their technical and eco-performance.

What comes to the environmental sustainability of the service product, it needs to be in line with the values and standards of the overall sustainability commitment of the company. "Greener" products need to be effective, delicious, safe, clean and attractive. That is to say: they must perform at least as well as their unsustainable counterparts, and preferably even better, as the green consumers are not willing to downgrade or change their lifestyle. (Ottman, 2011, p. 39; Jones, Clarke-Hill & Comfort, 2008.) An important element for sustainable operations is a certified EMS. It does not guarantee the product's or service's environmental quality, but refers to the fact that the company is running a management system that enables them to manage their environmental issues in a systematic and coherent way by setting targets for reducing their environmental impacts and striving for continuous improvement in managing them (Beltz & Peattie, 2012).

3.3.3 Customer cost

Customer cost from consumer's perspective includes price, purchase costs, usage costs and post-use costs. For many marketers it represents the most significant element in the sustainability marketing mix trying to find out how to increase its revenues through environmental responsibility. This calls for developing a

value proposition where the marketer should be able to convince the consumers about the superior social and environmental performance of a service or product, and moreover showing its real value for the identified customers and market segments (Charter et al., 2002). Development of value proposition, however, is one of the most demanding tasks to overcome for two obvious reasons. Firstly, the marketer needs to find a way to internalize the incremental cost of the sustainability offering to the price. New regulations may also have an impact on the externality costs, thus affect the future pricing of the product or service. Secondly, the marketer should be able to drive the customers' focus into sustainability issues of the product, as the customers often tend to concentrate solely on the price and quality of the offering (Becker, 2004).

The information given about the environmentally sustainable product must be correct and easy to understand. Acquiring the needed information about products' eco-performance may not be time consuming or misleading by any means as this may result in disorientation of the customers. Purchasing an environmentally sustainable product or service must not be "hard work" either. (Testa et al., 2013.)

Examining the price sensitivity of environmentally conscious customers and innovating 'green' offerings based on their needs is a customer-driven way to approach this problem. Kotler and Armstrong (2010) have introduced customer value-based pricing model that is driven by the customers' perception about the product and its value. Therefore in case a company succeeds to convince environmentally conscious customers about better environmental performance of its activities, in addition to other possible winning traits, it may try to obtain a premium price for its services. However, examining and gaining an understanding of the customers' perceptions and adjacently their price sensitivity regarding the service or product in concern, calls for a coherent primary research in the relevant market. Those companies that are able to shift to value-based pricing may become the "price-makers" of their industry. (Kotler & Armstrong, 2010.)

3.3.4 Customer convenience

Customer convenience corresponds *place* in the traditional marketing mix. It calls for reasoning and convincing the customers of what kind of added value or consumer benefit the company's service offering includes regarding sustainability (Kotler, 2011).

In the modern world, and especially in affluent countries like Sweden, consumers have purchasing power, but are often suffering from lack of time. Therefore a service concept that saves their valuable time in an environmentally responsible way offers them convenience and hence may become a denominator in their purchasing decision. Belz and Peattie (2012, p. 258) stress that one of the fundamental issues in marketing is to establish a convenient and functional distribution channel *"where buyers and sellers are conveniently and efficiently brought together in place and time"*. An exhaustive and advanced online mobile service to manage airline passengers' travel plans saves time and trouble from them. Convenient flight schedules from uncongested airports and practical lo-

gistics to the major airports that the airline uses also enable the consumers to further time savings. In addition, these are examples of means how airlines could offer environmentally sustainable and comfortable travel experience for their passengers. Online mobile services reduce the amount of paper usage at every phase of the travel path. Flying from uncongested airports, in turn, allows the airlines improvements in their fuel efficiency with shorter taxiing times and avoiding long holding patterns in the airspace.

One of the major challenges for airlines is the imbalance between customer convenience and airlines' environmental performance what comes to the in-flight product offering. Paradoxically, most of the enhancements in the customer experience on board the aircraft, such as extra legroom, and additional entertainment (newspapers, magazines) result in reduced environmental performance by lowering the aircraft's fuel efficiency. Therefore the marketer needs to place a special focus on stressing the fact that airlines together with their customers want to be part of the solution, instead part of the problem, what comes to balancing with customer convenience and environmentally responsible air travel.

3.3.5 Communication

Communication in sustainability marketing requires special consideration and skills to avoid any negative reactions from competitors, customers, or other stakeholders (Kotler, 2011). At worst, some companies have ended up to subject of boycotts for their campaigns. However, the role of communication in sustainability marketing mix is paramount. It is the only way to raise awareness and pass information to the customers, integrate sustainability issues into their daily lives, hence to build long-lasting customer relationships with them (Belz & Peattie, 2012).

An effective and successful communications campaign is built on four elements: defining communications *objectives*, selecting appropriate *media*, developing meaningful *messages* and related implications for these elements (Belz & Peattie, 2012). A company aiming to promote their environmental sustainability efforts needs to carefully plan how to *connect* with their customers in terms of discussing these issues with them and respond to enquiries and possible concerns of the customers. Grant (2007, p. 92) claims that marketers who underline sustainability in their main messages, not to mention develop slogans out of them, place themselves in keen scrutiny in the eyes of their stakeholders. The entire organization, from every aspect of the business, needs to carefully live up to standards they set for themselves, as they will be judged by them. Moreover, to point out the delicacy of this issue Grant (2007, p. 83) states that: "…*giving yourself a green image is the exact opposite of true green marketing.*" This notion includes some principles that the marketers should take into account when promoting issues related to the company's sustainability agenda. Firstly, only a green innovation that truly makes a change compared to the present solution can be promoted with a sustainability label. Gluing green labels on existing products or services will be easily perceived green washing. Secondly, marketer should always include two topics in messages communicating about green issues at hand – the company takes responsibility on their environmental im-

pacts and the solution it offers for those impacts in concern. Finally, "green" should not be a proposal, but rather a principle. (Grant, 2007.)

When a company aims to build a strong environmental culture within its organization, it is important to pay particular attention to all contact points between customer and the company. These contact points imply especially to suppliers and employees. The suppliers' performance needs to be aligned with the company's environmental strategy. Just like the suppliers, company's employees need to be aware of the environmental opportunities and ways how to engage in them in their daily activities. Notable implications of this for Finnair are discussions that the cabin crew and other frontline service personnel conduct with the customers related to the sustainability matters related to service products and cabin waste treatment.

Corporate communications has an important role within sustainability communication in terms of being responsible for the overall credible and effective sustainability communications. Beltz and Peattie (2012) claim that *public relations and politics* are integral associates of sustainability communication. In order to succeed in sustainability marketing, the marketers' messages need to reach and influence all stakeholders in the society, including decision makers. Without public's and politics' support and acceptance, sustainability marketing will not succeed.

3.4 Segmenting green consumers

Market segmentation divides the customers, or potential customers, based on different factors to distinct categories, where they share common level of interest or need in certain (or comparable) offerings, which are especially proposed for them (Kotler & Armstrong, 2010). Sustainability market segmentation aims to outline large distinct markets in order to be able to effectively target on those more controllable, smaller, profitable and attractive segments that are open to sustainable product and service offerings (Laroche, Bergeron & Barbaro-Forleo, 2001; Emery 2012). By understanding and researching sustainable consumption, customer needs and furthermore by identifying the relevant segments and moreover effectively develop a sustainability marketing-mix to support its marketing strategy (Belz & Peattie, 2012; Emery 2012). Segmentation aims to define a precise value proposition for the offered service or product. This compelling value proposition is intended to indicate to an environmentally conscious customer why he should choose a service offering over another. As sustainability marketing aims to foster behavioral change, sustainability segmentation should reflect those social and economical sensitivities that affect environmentally conscious consumers' environmental behavior and degree of engagement in sustainability (Emery, 2012). According to Belz and Peattie (2012) there are several denominators that can be used to divide the market by demographics, psychographics, attitudes and behavior.

Green consumers' *demographic* characteristics can be derived from age, gender, religion, race, education, occupation and income. In principle, de-

mographics are rather inconsistent and weak variables in sustainability segmentation on generic basis (Laroche, Bergeron & Barbaro-Forleo, 2001; Bhate & Lawler, 1997). Some earlier studies have also drawn profiles of environmentally conscious consumers stating that they are affluent mid-aged women with higher than average level of social status and education (e.g. Berkowitz & Lutterman, 1968; Anderson & Cunningham, 1972). However, opposing views have been stated in several studies claiming that younger generations would be more responsive to the environmental sustainability matters (e.g. Leonard-Barton, 1981; McEvoy, 1972) and that only men would be more willing to pay for non-polluting products (Balderjahn, 1988). Some studies, in turn, show that education and income would have a positive correlation to environmental responsibility (e.g. McEvoy, 1972), whereas there have been also contrary results on this issue (Roberts, 1996). Finally, some extensive literature reviews on sustainability segmentation (e.g. Laroche et al., 2001; Minton & Rose, 1997 and Hassan et al., 2003) have concluded that the scholars have not been able to draw a solid, consistent profile of a green consumer based on their demographics. Adjacently Straughan and Roberts (1999) as well as Hassan et al. (2003) legitimately question whether demographics are effective variables in overall sustainability segmentation as the eco-literacy, concerns and attitudes of consumers do vary – regardless of their education level, age or social class. It is undeniable that in some sustainability related researches demographics do have an impact on the result, but at the same time they are highly context dependent (De Groot & Steg, 2007, p. 1819).

Geographic denominator in segmentation demarcates the living areas to different units that may represent countries, provinces, cities, municipalities, densely populated areas or regions (Laroche et al., 2001). What comes to sustainable consumption and attitudes they vary from country to country. Moreover, there are significant differences in PEB among developing countries and developed countries. According to some studies (Belz & Peattie, 2012; Kotler & Armstrong, 2010), the most responsive segments for sustainable offerings, such as LOHAS (lifestyle of health and sustainability), mainly live in developed economies and are willing to pay premium price for sustainable products and services. By contrast, in developing countries and emerging economies the affluent population is less than 20 percent and there are no rising trends for growing markets for sustainable products or services yet (Belz & Peattie, 2012). When considering global market sustainability segmentation, that could be essential especially for airlines, global geographical segmentation would require identification of different clusters of countries that have the same type of sustainable consumption patterns and respond in similar ways to sustainable air travel (Hassan et al., 2003).

Assael (2004) claims that *attitudes* are essential constructs in sustainability segmentation. Consumers are typically segmented by the intensity of their attitudes and behaviors towards different sustainability activities. A renowned example of this is the Roper Green Gauge Survey that used six categories from "Genuine Greens" (the environmental activists) to "Mean Greens" (cynical about environmentalists) in order to segment the consumers by their attitudes and behaviors towards the environmental issues (Emery, 2012, p. 106). However, testing consumers attitudes, as well as engagement in different sustainability

activities for segmentation purposes by their perceived behavior does not necessarily reveal the underlying reasons why they are doing it. For instance, by assessing individual's environmental engagement by their recycling activity may derive from the fact that by not complying with the community's recycling policy they would be charged with a penalty fee. Engaging in buying organic food may result from one family member's preference, while the others follow the same habit rather for practicality reasons than their own preference.

In *psychographic* sustainability segmentation the marketers contemplate their customers by their lifestyles, personality characters, values and motivation towards sustainability. In some studies these are called the IAO variables (for Interests, Activities, and Opinions). According to Ukenna et al. (2013) the main finding with regard how *psychographic* attributes correlate with pro-environmental behavior indicates is that these two variables go mostly hand in hand. For instance - attitude, knowledge and values correlate with people's personal qualities, life style and social class (Ukenna et al., 2013). As earlier stated in this study, demographic analyses and variables alone provide very marginal consistency when defining or segmenting green consumer. Agreeing with this view, Antil (1984) suggests that psychographic analysis combined with demographics would reveal the essential underlying factors that define a socially responsible consumer.

Emery (2012) argues that *consumer behavior* and *willingness to engage* are the most relevant axis in segmentation. In addition, there are four essential factors that a marketer should focus on what to consider in the segmentation:

- What is the degree of their current sustainable behavior?
- Can the behavior be sustained and broadened to other areas of activities the person undertakes?
- Why would a person engage or disengage in sustainable behavior?
- How to map and select the different groups by their behavior? (Emery, 2012)

Previous studies (e.g. Do Paco & Raposo, 2009; Peattie, 2010; Antil, 1984) have shown that sustainability segmentations are highly context dependent. The attitude-behavior gap, which was discussed in the previous chapter, explained this phenomenon more in detail. Moreover, sustainability segmentation does not completely dissolve the inconsistency in consumer behavior within the identifiable segments (Emery, 2012). Bedford (1999) argued in her study that in unequal ethical behavior, consumers tend to define a suitable ethical behavior pattern for themselves reflecting to the context they are in, and similarly from their own premises they are willing and flexible to make adverse changes in the beahavior pattern whenever needed. This shows that although segmentation is a valuable tool for a sustainability marketer, it is only descriptive. The movements across segments take place when there are changes in behavior and issues related to it.

4 RESEARCH METHODS

The research method of this study is a quantitative marketing survey. Wrench et al. (2008, p. 213) state that "*A survey is a social scientific method for gathering quantifiable information about a specific group of people by asking the group members questions about their individual attitudes, values, beliefs, behaviors, knowledge and perceptions*". Thus, from marketer's perspective, by using quantitative method the marketer gains descriptive statistical data about buyers' preferences, beliefs, satisfaction and purchase behavior that can be used to identify and define specific marketing opportunities and problems (Kolb, 2008; Kotler, 2003). The study measures relationships between statements and different constructs aiming to find correlations between them to answer the research problem. Statistical analysis will be performed, as it is customary for quantitative research (Burns & Bush, 2010).

There are two types of marketing researches: pure researches and applied researches. Pure research aims to discover entirely new information, whereas applied research focuses on solving a particular problem and by this also tries to decrease certain risks related to a company's marketing efforts (Kolb, 2008). Based on this definition, aiming to find out whether environmental responsibility of an airline has an impact on Swedish airline passengers' intention to purchase, this study can be considered as applied research.

4.1 Quantitative research method and data collection

The data of this study was acquired from Finnair's marketing survey that was conducted in Sweden to gain a comprehensive understanding about airline passengers' pro-environmental purchasing intentions. The marketing research was performed in co-operation with a Swedish marketing research firm in May-June 2015 and data collection took three weeks. The marketing problem was examined by administering an online customer panel. The author participated in the marketing research as a focal point of the customer organization Finnair. She conducted the competitive bidding and participated in formulation of the ques-

tionnaire. As the marketing survey served also other marketing purposes, only questions related to the scope of this study were used to perform the analysis.

The results of this study are intended to provide the company with an overlook of Swedish airline passengers' engagement to PEB and how it affects their intentions to purchase environmentally responsible air travel. Moreover, it aimed to provide insights how to target this audience with a marketing-mix that would further pursue pro-environmental purchasing intention among the airline passengers to differentiate in the market.

4.1.1 Sample

Sampling plan includes three elements: sampling unit, sample size and sampling procedure (Kotler, 2003). *Sampling unit* aims to determine accurate target population for the research (Burns & Bush, 2010). The scope is further sharpened to cover specific sample unit that depends on the persons and topics to be surveyed (Burns & Bush, 2010, p. 390). In this study the descriptors helping to define the relevant population are (1) adult airline travelers, (2) living in Sweden. In order to acquire a wide range of participants of different age groups to participate the survey, the lower age limit was set to 16 years and upper limit was defined to be 80 years of age. No separate quota was set for business travelers as in most of the cases their purchasing decisions regarding air travel are made by their employer companies. The prerequisite for participating the survey was that the person had traveled abroad during the past 12 months by air (Appendix 1.)

Sample size determines the number of people i.e. sample units to be included in the sample. Generally, there is no optimal sample size, however the sample needs to be large enough in order to provide accurate results from the survey (Burns & Bush, 2010). Moreover, a random sample contains always inaccuracy, thus only complete enumeration (i.e. census) can be clean of sample errors (Burns & Bush, 2010). In this study, the target for the sample population was agreed to be 1500-2000 respondents, in order to perform an accurate analysis of the collected data. The realized sample size of this study was 2108. The sample error of this size of random sample calculated with the sample error formula ($\pm$ *Sample Error* $= 1{,}96 \times \sqrt{p \times q} \div n$) is only $\pm 2\%$ (Burns & Bush, 2010).

The sample frame includes the fraction of the entire population that belongs to the researched area of interest (Burns & Bush, 2010). In 2014 there were 35,7 million passengers flying to and from to Sweden who in principle could have been potential members of the sample population in the survey (Swedavia - Swedish Airports, 2015). However, as there was no exact data available from their neither residential status nor nationality, based on this information it was not possible to determine the size of the actual sample frame.

4.1.2 Data collection method

Data collected from the survey presents primary data as it was collected by us-ing online survey questionnaires. Considering the research question and the sub-questions aiming to verify consumers' attitudes and behavior, the research approach is descriptive (Kolb, 2008). The study aims to obtain numbers and facts about consumer behavior regarding sustainability in the Swedish market (descriptive approach) to answer questions who, what, where, and how. (Kolb, 2008; Burns & Bush 2010, p. 57). Conducting survey by using online question-naires is efficient and inexpensive. The questionnaire can be sent to vast num-ber of recipients and it can include many questions. This kind of data collection is also less time consuming for the researcher when performing the data analy-sis, provided that the questionnaire is carefully planned and the researcher has the proper analytical methods in use (Hirsjärvi, Remes & Sajavaara, 1997). The answers are also free of unintentional interviewer error.

However, online survey questionnaires have also their limitations. Re-searchers may find the provided data from the questionnaires superficial or theory wise insufficient, if the respondents have not understood what they were asked for, or if they are not transparent in their answers making intentional re-spondent errors (Hirsijärvi et al., 1997). In addition, there may be doubts how conscientious the respondents are with their answers. Additional concern re-lates to how unequivocal the respondents perceive the formulation of research questions and what is the degree of their knowledge related to the topic (Hirsjärvi et al., 1997).

4.1.3 Content of the questionnaire

In order to achieve maximal accuracy and validity of the collected data, the sur-vey should be based on special area of interest (Hirsjärvi et al., 1997). Also the questions chosen to this data analysis were selected to represent the adequate variables. As the data used in this study is only part of a larger marketing sur-vey, the author designed a new dataset of those questions that were relevant for the purpose of this study. As Ajzen's (1980) TPB is used as the framework for the analysis the questions are reflecting the constructs included in TPB.

Balnaves and Caputi (2001) emphasize that the questions, that are the ac-tual variables in the questionnaire, need to reflect those operational definitions that the researcher has made. *Nominal-level* questions, such as questions related to gender, are measured as category variables i.e. they are simply label objects offering only option to choose one or other (Burns & Bush, 2010). Variables in-cluded in this study using nominal scale are gender and *perceived behavioral con-trol. Interval scales*, in turn, have continuum and the descriptors should have equal distance from each other (Burns & Bush, 2010). Variables included in this study using interval scales are related to *attitude toward behavior, past purchase intention and self-identity*. The entire questionnaire used for this study is includ-ed in the Appendices of this study (Appendix 1).

FIGURE 6 Framework of the data analysis with included variables and a legend of abbreviations.

Background variables
- Age
- Gender
- Airline (Finnair [AY], SAS, Lufthansa [LH], Air France – KLM [AF-KLM], Norwegian [DY], British Airways [BA], Air China [AC] & Qatar [QR])

Airline brand recognition

Perceptions on all airlines
ENVRESP ALL
SOCRESP ALL
LP ALL
HIQJCL ALL
FFP ALL
PUNCT ALL
MF ALL
CLEAFRE ALL
US ALL

Attitude
Environmental factors affecting purchase from airline
- ENVRESP A
- ECOPROD A
- MF A
- OAPRESP

Past behavior
Environmental factors affecting previous purchase from airline
- ENVRESP PB
- SOCRESP PB
- MF PB

Self-identity
Pro-environmental behavior
- SUSTFOOD
- SIBRANDS
- RECYCLING
- CHERNATURE
- ENVRESPPROD
- CARBONOFFSET

Perceived behavioral control
Perceived possibility to purchase from environmentally responsible airline
- ENVRESP PBC

Reasons to purchase from Finnair
ENVRESP AY
SOCRESP AY
LP AY
HIQJCL AY
FFP AY
PUNCT AY
MF AY
CLEAFRE AY
US AY

Intention to purchase from an environmentally responsible airline

Behavior

Intention to purchase from airline AY

Intention to purchase from airline with direct routes

ENVRESP A = environmental responsibility (attitude)
ECOPROD A = purchase ecological products (attitude)
MF A = modern fleet (attitude)
OAPRESP = overall product environmental responsibility
ENVRESP PB = environmental responsibility (past behavior)
SOCRESP PB = social responsibility (past behavior)
MF PB = modern fleet (past behavior)
SUSTFOOD = sustainable food products
SIBRANDS = brands that reflect self-identity
RECYCLING = sorting and recycling of domestic waste
CHERNATURE = cherish of nature
ENVRESPPROD = environmentally responsible products
CARBONOFFSET = offsetting carbon emissions from flying
ENVRESP PBC = environmental responsibility (perceived behavioral control)

↓ = variance analysis
↓ = factor analysis
↓ = regression analysis

ENVRESP AY/ALL = environmental responsibility (Finnair)/(all airlines)
SOCRESP AY/ALL = social responsibility (Finnair)/(all airlines)
LP AY/ALL = offers low prices (Finnair)/(all airlines)
HIQJCL AY/ALL = offers high quality business class (Finnair)/(all airlines)
FFP AY/ALL = frequent flyer program (Finnair)/(all airlines)
PUNCT AY/ALL = punctual flight operations (Finnair)/(all airlines)
MF AY/ALL = flies with modern fleet (Finnair)/(all airlines)
CLEAFRE AY/ALL = clean and fresh aircraft (Finnair)/(all airlines)
US AY/ALL = offering unique services (Finnair)/(all airlines)

With the intensity continuum the researcher can obtain more precise results by stretching the scale range (Burns & Bush, 2010). In marketing researches commonly used Likert-scale was chosen to measure the respondents' agreement or disagreement, with scale range from 1 to 10, on the statements in the questionnaire. The questionnaire was tested by a sub-sample of twenty people before launching it to verify that the questions are understandable and no bias are included in them.

The questionnaire design served two different purposes. Besides providing Finnair background about Swedish airline passengers' attitudes and intentions towards purchasing an environmentally responsible air travel (scope of this study), it also offered Finnair the needed data for sustainability segmentation in the Swedish market (performed by their media agency in Sweden). The background question BG2 and SCREEN_1-6 were designed to be *screening* questions. By complying with both prerequisites (age and air travel abroad) 2108 out of 3481 respondents were qualified to participate the survey. (Appendix 1).

Webb (2000) states that *warm up* questions should be easily answered and they should also evoke respondents' interest to engage them with the responding. Warm up -questions (Q1-Q7) inquired respondents' preferences and motivations related to their airline selection, their knowledge of pre-selected eight airlines flying out of Stockholm and their purchase intentions regarding next air travel (Attachment 1.) *Statements* are the questionnaires core questions (Q8-10) and by the time the respondents reach this stage, they have gained routine and technique for answering. Statements aim to find out the degree of how much environmental responsibility weighs in respondents' purchasing decisions (Q8), what are the other issues that affect their decision making (Q9) and what is their perception of the pre-selected airlines for this survey (Q10). Frequent flyer program related questions (Q11-12) surveyed the respondents' reflections on the pre-selected airlines' loyalty programs. The most complicated question (Q12) was placed second last in the questionnaire asking the respondents to evaluate how different attributes meet their perceptions from different airlines. Finally, the last question (Q13) was a *lifestyle inventory* –type question aimed to cover the individual's activities, interests and opinions (AIO) that affect their purchasing decisions (Burns & Bush, 2010). For the purpose of this study, the questions measured the respondents' self-esteem with regard to environmental responsibility. Finnair's media agency uses these variables for their sustainability segmentation purposes. (Appendix 1).

4.1.4 Reliability and validity of the questionnaire

Cronbach's alpha is a commonly used method to measure the internal consistency or average correlation of variables, thus ultimately addressing to the reliability of a questionnaire. The generally recommended minimum value for the set of variables addressing the same construct is 0.70. A Reliability Analysis -test was performed with SPSS Statistics software (ver. 22, IBM, Armonk, N.Y.) to find out whether series of variables in the questionnaire measure to the same construct.

The set of variables related to *attitudes* (Q8_1-4) yielded Cronbach's alpha of 0.74, hence exceeding the recommended minimum. The only question in this pattern that could have had an inclining impact on the Cronbach's alpha would have been Q8_3 ("When buying an air fare, I think it is important that the airline flies with a modern fleet"). Removing this question would have inclined the Cronbach's alpha to 0.78. However, given that flying with modern fleet is the most responsible measure an airline can take, this question is an essential variable to be included in the dataset. This minor discrepancy gives a moderate indication that the respondents are not aware of the correlation between the fleet's age and how it affects the overall environmental performance of the airline. When measuring the *past behavior scale* constructs, Cronbach's alpha was 0.72. However, it showed clearly that Q9_3 (When selecting the airline, I think it is important that the ticket price is low.) does not belong to this pattern of questions. The inter-item correlation matrix showed correlation below 0.05 with three of the constructs, thus excluding this question from the pattern inclined Cronbach's alpha to 0.76. Variables related to *perceived behavioral control* Q10_1_01-08 asked the respondents to evaluate the environmental responsibility of each of the pre-selected eight airlines by choosing yes or no. Moreover, Q10_1_09 stated that none of these airlines are environmentally responsible. As the last question was stated reversely the Cronbach's alpha showed 0.39, but after recoding it to address the question in the same way, the correlation changed into acceptable level (0.79). Finally, variables reflecting *subjective norms* that are in this study replaced with *self-identity concept* showed Cronbach's alpha at 0.74.

4.2   Data analysis

Data analysis of this study was performed with SPSS Statistics software (Ver. 22, IBM, Armonk, N.Y.), which is the most commonly used statistical tool in social sciences (Balnaves & Caputi 2001, p. 126). According to Burns and Bush (2010) data analysis has four different functions: to summarize the data by using measures and statistical values, conceptualize the data with words and/or graphics, to communicate the findings by explaining the underlying patterns or dependencies and to make generalizations by relating sample findings to the population (Burns and Bush 2010, p. 461).

As the survey questionnaire included vast amount of data that was not used in this analysis, the author converted to the data matrix into an Excel file and deleting all non-relevant variables. Three different types of statistical analysis were used. *Descriptive analysis* summarizes the main features and basic findings of this dataset. This allows the author to highlight some of the most general patterns for the subsequent analysis forming a foundation (Vondruska, 1995). *Predictive analysis*, in turn is used to determine more complex patterns of associations, such as how different predictor variables associated with key depended variables, as well as to predict future conditions. By predicting a single dependent variable with several independent variables, the multiple regression

models provide a useful framework to predict future conditions that tend to depend on several different factors (Burns & Bush, 2010). Factor analysis, in turn, can be performed to identify dependent variables that form simple patterns on within a more extensive pattern of relationships (Gorsuch, 1983).

4.2.1 Cross-tabulations

Cross-tabulation analysis is used for assessing relationships between two nominal-scaled variables. Cross-tabulation helps the researcher to discover underlying relationships between the variables (Burns & Bush, 2010).

A Chi-square (X^2) goodness of fit analysis, in turn, examines whether the frequencies of observed variables differ from the null hypothesis in a cross-tabulation. Thus, rejection of null hypothesis implies to non-monotonic association between the two variables (Burns & Bush, 2010).

4.2.2 Non-parametric tests for differences in means

Non-parametric tests were used in order to be able to perform summary calculations using ordinal data, which do not meet assumptions of parametric statistical tests. *Kruskall-Wallis test* was used to analyze two factors. Firstly, it tested how the airline passengers' intention to purchase changes regarding different airlines depending on whether they offer direct flights to respondents' intended final destination. Secondly, it was used to examine differences between age groups and different variables. Kruskall-Wallis –test is an extension of the *Wilcoxon-Mann-Whitney* (Mann-Whitney) test and it is a one-way analysis of variance. It is a non-parametric method to be used when the significance of more than two variables is tested and there is no need to hypothesize normal distribution. In addition, Kruskall-Wallis is well suited for testing scale variables that measure opinions. The null hypothesis in this study for Kruskall-Wallis test is set for .05 meaning that if the p-value is below that, significant difference have been found between the tested variables. (Sawilowsky & Fahoome, 2005.)

Mann-Whitney test is very similar to Kruskall-Wallis test, but it can handle only two-level independent variables, and is best suited to comparison of means of two populations (Balnaves & Caputi, 2001). The test compares two population means assuming they are equal having similar shapes regarding the distribution of the values (Balnaves & Caputi 2001, p. 193). In Mann-Whitney -test "z" equals the difference between two sample means.

4.2.3 Factor analysis

The purpose of factor analysis is to simplify complex multivariate data to fewer uncorrelated factors to identify structure (e.g. clusters) in the data. The identified clusters, in turn, may help to understand underlying factors contributing to the phenomena of interest. Typically, factor analyses identify three to five different factors that explain significant amount of variation in the data. An ideal factor analysis takes place when each variable loads only to one factor, and different kinds of factor rotation algorithms can be used to maximize variance ex-

plained by different factors. The author used *Oblimin* rotation method to enable correlation between the variables (Karma & Komulainen 2002, p. 51). *Bartlett's Test of Sphericity*, in turn, was used to find out whether there were a sufficient number of statistically significant correlations among variables used in the Factor analysis (UCLA, 2015). *Kaiser-Meyer-Olkin Measure of Sampling Adequacy* compares the sum of partial correlation coefficients to the sum of correlation coefficients. It can take values between 0 and 1, values closer to 1 are always better. Values less than 0.6 are not acceptable (UCLA 2015). When examining the generated factors, initial E*igenvalues* were used when assessing the variance among the different factors. The more variance the factor accounts, the more significant it is (UCLA 2015).

4.2.4 Linear and logistic regression analysis

The *regression analysis* intends to explain and predict changes in dependent variable (response variable) with help of one or more independent variables (explanatory variable; Benalves & Peter 2001). The prerequisite for linear regression analysis is that the relationship between dependent and independent variables is linear and that there should not exist any strong correlation between the response variables (i.e. multicollinearity; Karhunen, Rasi, Lepola, Muhli & Kanniainen 2011, p. 89). *Residual errors* examine the model's predictive accuracy, i.e. the greater the difference is between the actual data points and predicted data points, the greater the error is in the prediction (Burns & Bush 2010). Logistic regression analysis, in turn, examines dichotomous outcome variables, such as binary variables (UCLA 2015).

4.2.5 P-value

P-value refers to the probability that an association or difference of a similar scale than observed would occur again in another population even in case that the null hypothesis would be true. P-value can take values between zero and one. The smaller the value, the less likely there will be another sample that would show as large difference as the observed one. In this study, the author used the conventional P-value of 0.05 to assess whether observed associations or differences were significant: values equal or below 0.05 were considered statistically significant.

4.2.6 Scales

In the data analysis the scale from 1 to 10 has been broken down to seven categories when reviewing the likeliness to do something or alternatively agreement with something (Table 3).

TABLE 3 Scales for review of likeliness or agreement with the statement.

Score	Likeliness	Agreement
1	Not at all likely	Completely disagree
2	Not likely	Disagree
3-4	Somewhat not likely	Somewhat disagree
5	Neither likely, nor unlikely	Neither agree, nor disagree
6-7	Somewhat likely	Somewhat agree
8-9	Likely	Agree
10	Completely likely	Completely agree

For describing coefficient strength of association, Burn's and Bush's (2010, 578) "Rules of Thumb about Correlation Coefficient Size –ranges were used (Table 4).

TABLE 4 Scales for review of strength of association.

Coefficient Range	Strength of Association*
± 0.81 to ± 1.00	Strong
± 0.61 to ± 0.80	Moderate
± 0.41 to ± 0.60	Weak
± 0.21 to ± 0.40	Very weak
± 0.00 to ± 0.20	None

* Assuming the correlation coefficient is statistically significant.

5 RESEARCH FINDINGS

This chapter presents the findings of this study. It starts by presenting the background variables as well as Finnair's position towards its competitors in the Swedish market. Thereafter, the variables that are included in the analysis are explored to assess their validity and gain an overall understanding of the dataset by describing and summarizing data for each variable. This is so called *univariate* analysis of data, which is done in isolation from other variables (Benalves & Peter, 2001).

Moreover, Balnaves and Caputi (2001, p. 149) claim that: "*Correlation is closely related to prediction and statistical regression. Prediction is estimation.*" Therefore, to perform an accurate analysis of consumers' intentions and come to conclusions the third subchapter of this study focuses on testing relationships between two variables (*bivariate* analysis), and relationships between multiple variables by performing *multivariate* analyses, such as factor analysis as well as regression analysis. Figure 7 shows the framework for the data analysis of this study.
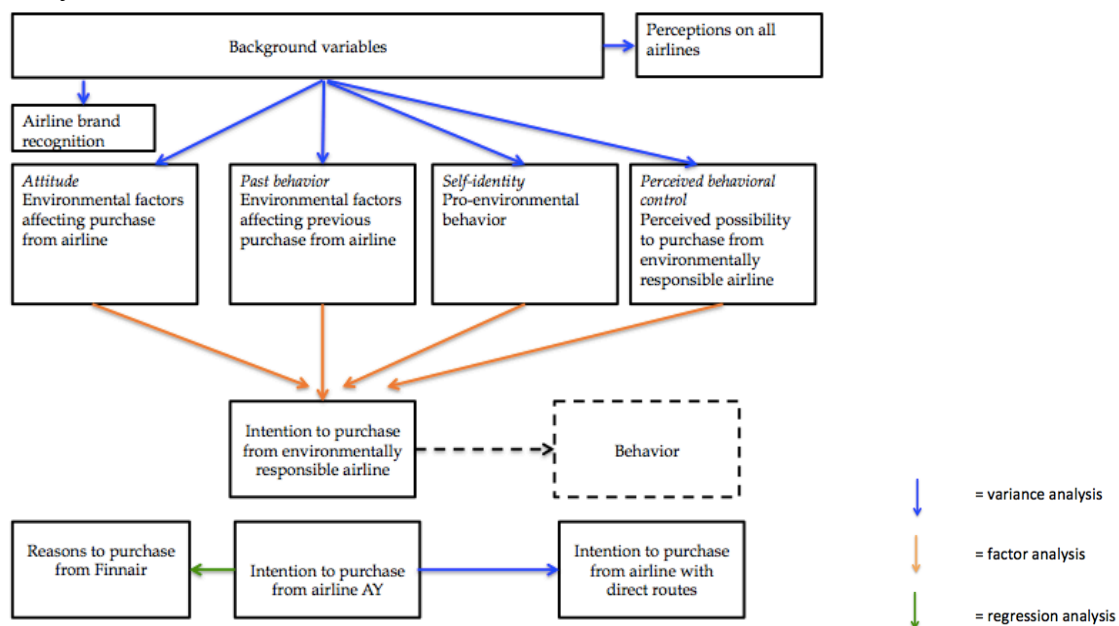
FIGURE 7 Framework for the data analysis

50
5.1 Background variables and Finnair's market position in Sweden

This sub-chapter presents the background variables of this study as well as shows Finnair's position relative to its competitors in the Swedish market based on the survey.
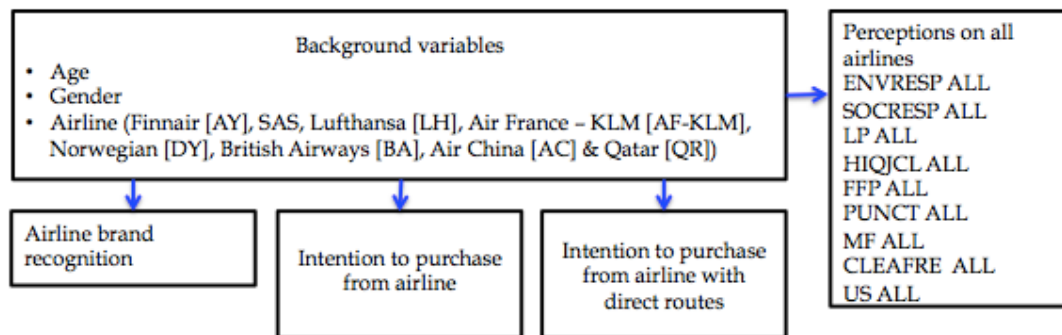
FIGURE 8 Framework for background variables and Finnair's market position in Sweden

5.1.1 Demographics and screening

Based on the findings from earlier studies (see 2.4.1 Segmenting green consumers) demographic variables are rather context dependent. Therefore, only gender and age variables were included in this study. The distribution of males and females were balanced, males representing a slight majority with 52.3% participation in the survey. This slightly differs from the gender distribution within Swedish population, which during the time of this survey showed 0.01 percent female bias (Statistika Centralbyrån, 2014).

The distribution of the qualified respondents' age and gender is shown in Table 5 below.

TABLE 5 Summary of the qualified respondents.

Gender (n = 2108)	Male	52.3%
	Female	47.7%
Age (n = 2108)	Under 25	10.4%
	26-35	14.9%
	36-45	17.4%
	46-55	19.2%
	56 and over	38%

As earlier mentioned, the minimum age of the participants was set to 16 years and the maximum age was 80. The age distribution in this survey from 26 to 55 years represented almost half (49.6%) of the population sample and was relatively evenly distributed across the three classes (Table 5). The youngest age group (under 25 years) was the smallest age group in this sample being only 10.4% of the respondents, whereas elderly air travelers (56 years and older) were the most active of the respondent age groups representing 38% of all the respondents in this survey (Table 5). The *mean* of the age of the respondents was 49 years, but there were two *modes* corresponding to 43 years old and 73 years old respondents, respectively.

Screening questions (Screen_1-6) inquired about the respondents' business and private air travels during the *past 12 months*.

- 13% had made 1 to 10 business short haul flights (excluding domestic travel)
- 5% had made 1 to 5 business long haul flights
- 35% had made 1 to 5 private short haul flights (excluding domestic travel)
- 16% had made 1 to 4 private long haul fights

5.1.2 Previous experience and perceptions on airlines

The eight compared airlines included in the study were: Finnair (AY), Scandinavian (SAS), Lufthansa (LH), Air France-KLM (AF-KLM), Norwegian (DY), British Airways (BA), Air China (AC) and Qatar Airways (QR). Respondents' previous air travel purchase was surveyed by asking the respondents which airline they flew last time when travelling abroad. Only two percent of the respondents had chosen to fly Finnair on their last trip, whereas 24% had flown with Scandinavian and 21% with Norwegian (Table 6). "Other airline" category reflects to the share of private short haul trips with various LCCs and charter airlines that the respondents listed (Table 6). The chi-square test examined whether there could be found difference between females' and males' previous airline choice. Null hypothesis was not rejected (X^2 = 22.0, p = 0.09), thus the relationship between gender and previous airline choice was not determined significant.

TABLE 6 Airline choice when last time travelling abroad shown by age category.

n = 2108	Total%	Under 25	26-45	46-55	Over 56
Finnair	2.1	2.7	2.5	1.7	1.7
SAS	24.4	23.0	23.9	27.6	23.9
Lufthansa	5.5	4.7	6.0	6.3	4.7
Air France-KLM	5.2	3.7	5.2	4.6	5.9
Norwegian	20.7	24.2	19.4	17.0	22.6
British Airways	2.9	3.1	3.1	3.7	2.0

(continues)

TABLE 6 (continues)

Air China	0.6	1.7	0.3	0.4	0.6
Qatar	1.1	0.6	1.3	0.8	1.2
Other	29.4	27.8	29.3	31.0	29.3
Not known	8.3	8.4	9.0	6.9	8.3

The chart below (Fig. 9) throws light on Swedish airline passengers' brand recognition on the pre-selected airlines. Finnair's and its closest competitors' brand recognition among Swedish air travellers' was measured by testing their engagement with the respective airline with scale 1 to 4 (1 = not familiar, 2 = familiar, 3 = have flown with, 4 = member of their frequent flyer program (FFP)). Out of the European carriers AF-KLM was the least familiar airline among the respondents (15% not familiar). However, almost 40% had flown with AF-KLM and 5% of the respondents were their FFP members. Finnair was the second least familiar among its close European competitors, with 8% of respondents being not familiar with the airline at all, 33% had flown with them and only 3% of the respondents were members of their FFP. The low number of the FFP members compared to the number of respondents flown with the airline indicates that there is still a lot of place for improvement in recruiting new members to Finnair's FFP.

SAS was the most familiar out of the airlines included in this survey for the respondents (0.3% not familiar), followed by Norwegian (2% not familiar), Lufthansa (4% not familiar), and British Airways (7% not familiar). Then again, both Air China and Qatar Airways were relatively unknown companies for this survey's respondents (46% and 35% not familiar) hence they were excluded from further analysis in this study.

FIGURE 9 Airline brand recognition

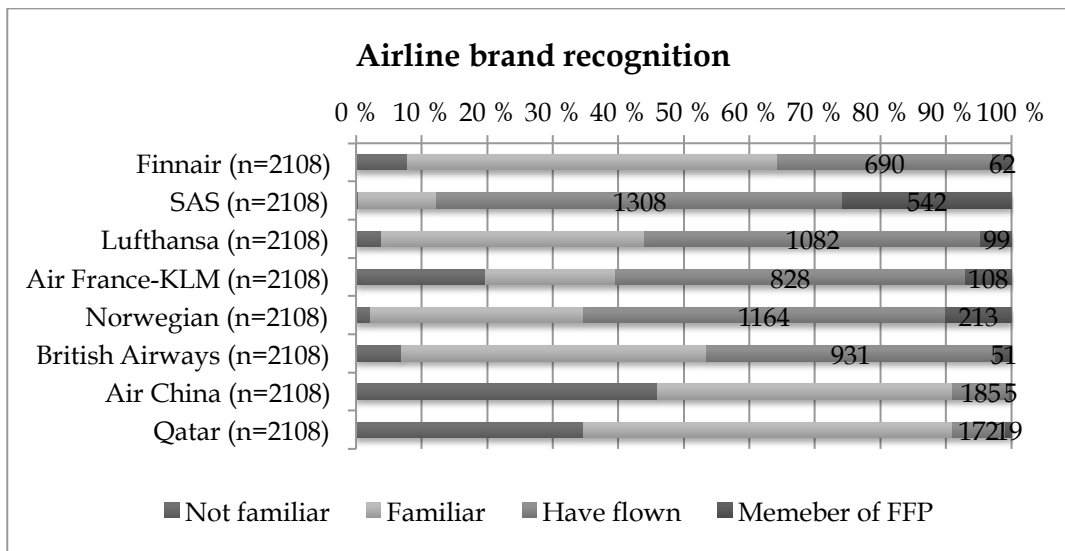The respondents' perceptions of the airlines were evaluated by using nine variables that related to airlines': environmental and social responsibility, low price offering, business class quality, FFP, punctuality, modernity of the fleet, appearance of cabin interior and extraordinary service offerings (Table 7). Based on the responses, the legacy flagship carriers, such as Finnair, LH, BA and AF-

KLM formed a clear "quality cluster" being the punctual airlines, flying with modern fleet and providing fresh cabin interiors. According to the respondents, SAS does not have a modern fleet, but instead they have the best FFP, highest punctuality and most fresh cabin interiors out of all airlines included in the survey (Table 7). Duly, Norwegian was perceived the lowest priced airline with a modern fleet and fresh cabin interiors. What was noteworthy regarding this study is that none of the operators were perceived environmentally responsible. And, another interesting result was that SAS was perceived the "most" environmentally responsible airline out of these eight carriers, even though their fleet was perceived to be the least modern. This supports hypothesis H3: *Brand recognition enhances airline passengers' perceptions on the airline's environmental responsibility.* Moreover, Norwegian with their modern fleet received lowest score what comes to the cleanness and freshness of the interiors of the planes.

TABLE 7 Perceptions of the airlines.

n = 2108	Finnair	SAS	Lufthansa	Air France-KLM	Norwegian	British Airways	Air China	Qatar
ENVRESP ALL	5,9 %	7,2 %	5,3 %	4,5 %	4,5 %	4,5 %	3,2 %	2,6 %
SOCRESP ALL	10,1 %	10,8 %	8,1 %	8,1 %	4,6 %	8,6 %	4,8 %	3,5 %
LP ALL	6,6 %	5,2 %	4,7 %	4,9 %	31,1 %	4,2 %	11,8 %	2,8 %
HIQJCL ALL	9,5 %	10,3 %	12,8 %	13,2 %	4,0 %	15,2 %	14,1 %	21,1 %
FFP ALL	6,0 %	13,1 %	7,5 %	6,6 %	5,0 %	6,5 %	3,2 %	4,0 %
PUNCT ALL	19,2 %	17,8 %	18,6 %	17,6 %	13,0 %	17,9 %	19,0 %	12,5 %
MF ALL	14,8 %	12,1 %	16,4 %	15,3 %	15,9 %	15,1 %	15,2 %	23,0 %
CLEAFRE ALL	25,4 %	19,6 %	23,6 %	25,7 %	17,6 %	24,1 %	23,3 %	20,8 %
US ALL	2,6 %	3,8 %	2,9 %	4,1 %	4,2 %	3,9 %	5,5 %	9,7 %

ENVRESP ALL = environmental responsibility (all airlines)
SOCRESP ALL = social responsibility (all airlines)
LP ALL = offers low prices (all airlines)
HIQJCL ALL = offers high quality business class (all airlines)
FFP ALL = frequent flyer program (all airlines)
PUNCT ALL = punctual flight operations (all airlines)
MF ALL = flies with modern fleet (all airlines)
CLEAFRE ALL = clean and fresh aircraft (all airlines)
US ALL = offering unique services (all airlines)

5.1.3 Intention to purchase

The respondents were asked about the likelihood to travel with the suggested airlines during the following months by using scale 1 (not at all likely) to 10 (completely likely). Out of the eight tested airlines SAS (Mean = 6.0, SD = 3.1), Norwegian (Mean = 5.1, SD = 3.1) and Lufthansa (Mean = 4.2, SD = 2.7) were the most preferred choices. Results showed that the SD for both SAS and Lufthansa is inclined and both of the airlines have a small group of passengers with strong preference (scales 9-10) for the airline (SAS 23.4% and Norwegian 16.7%; Fig. 10). SAS has an explicit dominance in their home market, being the most familiar and trusted flag carrier. Lufthansa, again, is a close alliance partner with SAS through Star Alliance offering an extensive global network from their hubs in Germany, only one-hour flight out from Stockholm. Norwegian is the biggest LCC in the Nordics with an extensive intra-European network and nowadays also long haul routes to Bangkok, Miami and New York that are

popular destinations among Swedes. Finnair, in turn, was the least preferred overall choice for the respondents out of the selected airlines. (Fig. 10.)
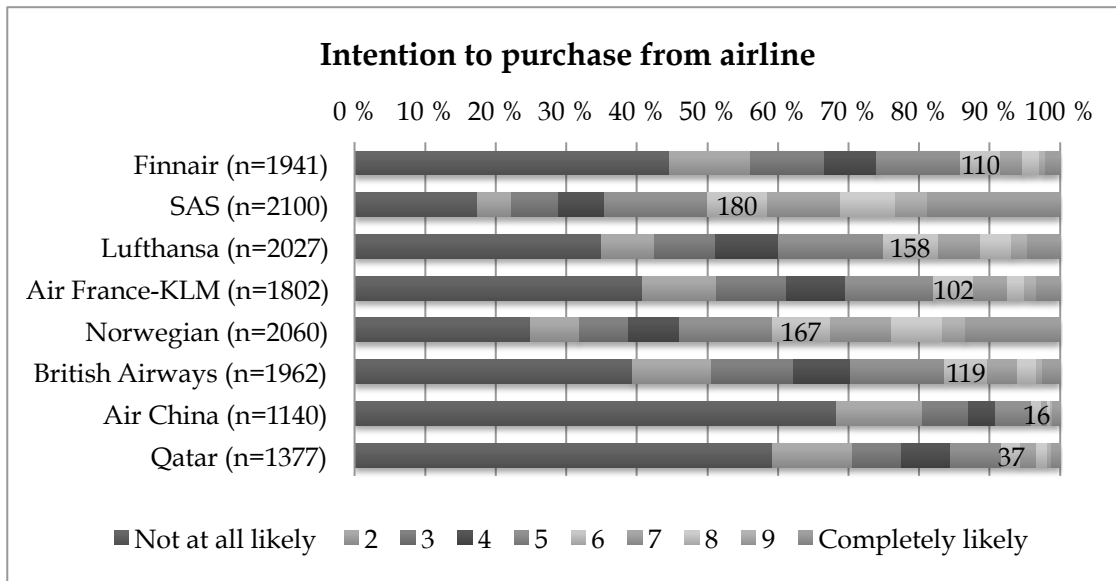
Shown are mean scores for the pre-selected airlines measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).
Data label 6 "Somewhat likely" is highlighted in the stacked bar to facilitate the interpretation of the figure.

FIGURE 10 Differences in intentions to purchase from an airline.

A further research was performed to find out the airline passengers' willingness to purchase in general level changes between the operators, in case the operators would offer a direct flight service to the destination where the passenger is intending to fly. Figure 11 displays the distribution of the likelihood of the respondents to travel with each airline, indicating that they would "6-7 = somewhat likely", "8-9 = likely, or 10 = completely likely" (values 6-10 labeled in stacked bars) still choose SAS Norwegian or Lufthansa even in a case where all airlines would be offering indifferent flight routings.

Respondents' intention to choose Finnair ("6-7 = somewhat likely", "8-9 = likely, or 10 = completely likely"; values 6-10 labeled in stacked bars) inclines from 8.4% to 35.7%, in case the airline would offer a direct flight service to the intended destination (Fig. 10 & Fig. 11). The results reveal that this would not be the case with SAS or Norwegian, who already hold strong preference among the respondents. Their incline in this case is moderate compared to Finnair (SAS from 41.4% to 65.5%; Norwegian from 32.6% to 46.4%). Thus, stop-over in Helsinki seemed to decrease the respondents' intention to purchase from Finnair.

Another variable that explained the respondents' low purchasing intention towards Finnair flights was their price image. 93.5% of the respondents reported that Finnair is not offering low prices, whereas the corresponding figure measuring Norwegian's price image showed 32.5%.

Intention to purhcase when direct flight routes available

Airline	6	7	8	9	Completely likely
Finnair (n=1941)	233	218	178	97	199
SAS (n=2100)	224	295	297	201	582
Lufthansa (n=2027)	230	275	238	145	276
Air France-KLM (n=1802)	195	195	163	87	176
Norwegian (n=2060)	209	250	204	140	362
British Airways (n=1962)	243	241	171	86	197

■ Not at all likely　■2　■3　■4　■5　■6　■7　■8　■9　■Completely likely

Shown are mean scores for the pre-selected airlines measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).
Data labels are highlighted in the stacked bars starting from "6 = Somewhat likely" through "10 = Completely likely").

FIGURE 11 Intention to purchase from an airline that offers a direct flight service.

A Kruskall-Wallis test, in turn, showed that there is significance how the airline passengers' intent changes, depending on the airline, with regard to whether the airline offers direct route to the intended destination (Chi-square = 28.81, df = 5, p < 0.0001; Fig. 12). The most significant difference in change of intended preference seems to be between Norwegian and Finnair, for the benefit of Finnair, (z = 14.6, p < 0.0001) when offering direct route (Fig. 12). Respectively, difference between SAS and Finnair showed significance for the benefit of Finnair (z = 8.6, p < 0.0001).
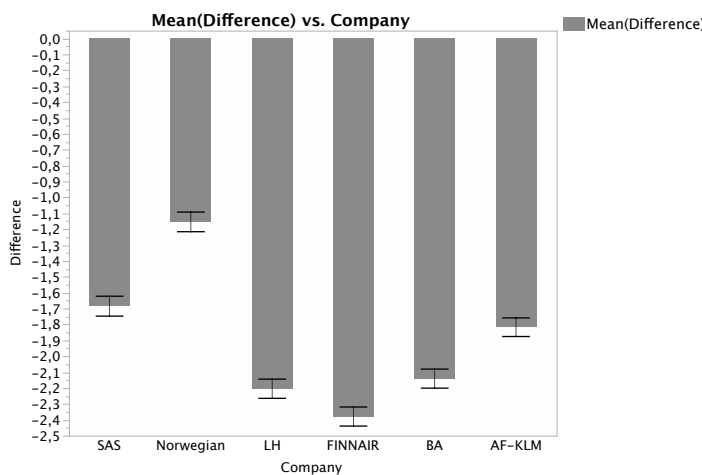
FIGURE 12 How passengers' intention to purchase changes between the airlines (SAS, Norwegian, Lufthansa, Finnair, British Airways and Air France – KLM) when all these airlines would offer direct routes to the intended destinations.

5.2 Decisive variables for intentions to purchase

This subchapter examines how different factors related to airline's environmental responsibility affect Swedish airline passengers' intentions to purchase. Ajzen's TPB forms the framework for the analysis as shown in Figure 13 below.
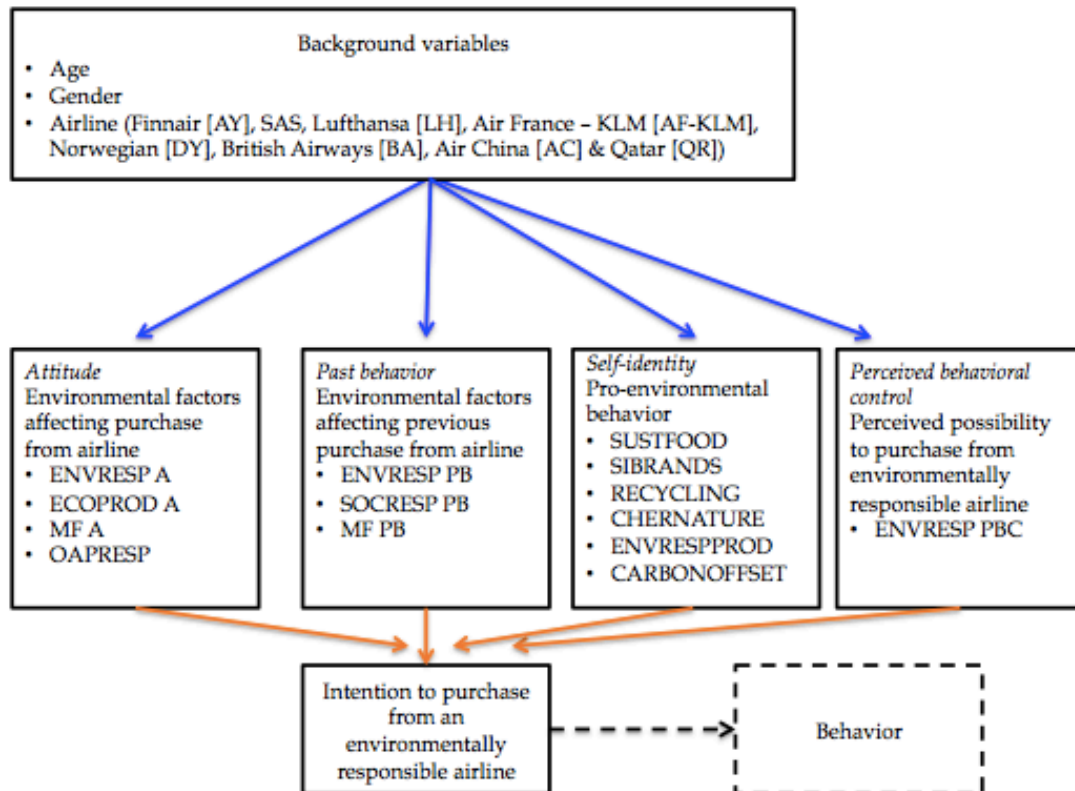
FIGURE 13 Application of Ajzen's Theory of Planned behavior in the data analysis

5.2.1 Attitudes towards pro-environmental behavior in airline selection

The first factor related to TPB measured the respondents' pro-environmental *attitudes*. Mann Whitney U -test was carried out to examine whether there are any differences between gender and pro-environmental attitudes. Gender differences occurred in variables that reflect the significance of *environmental* and *responsibility* and overall preference to *purchase ecological products and services*, as well as preference to fly with a *modern fleet*. By contrast, no gender differences were found what comes choosing the airline based on their *other environmentally responsible service product* offerings. Females were found to have more overall pro-environmental attitudes than males regarding air travel.

Independent-Samples Kruskall-Wallis test showed that the most significant difference between the age groups occurred in preference to fly with mod-

ern fleet (Table 8). The oldest age group (56 and older) agreed that it is important in their airline selection, whereas the youngest age group somewhat agreed with this statement. Overall the analysis showed that pro-environmental attitudes increased with age. (Appendix 2.A.)

TABLE 8 Airline selection and pro-environmental attitude

Variable	Mean score	Standard deviation	Mann Whitney Z (gender)	Kruskall-Wallis X^2/ DF (age groups)
ENVRESP A	4.2	2.4	-3.6*	92.6/ 4*
ECOPROD A	5.1	2.8	-6.5*	30.3/ 4*
MF A	7.5	2.2	-4.8*	186/ 4*
OAPRESP	6.1	2.5	0.35ns**	68.6/ 4*

Means are measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).

*p < 0.0001, **ns = non significant

ENVRESP A = environmental responsibility (attitude)
ECOPROD A = ecological products and services (attitude)
MF A = modern fleet (attitude)
OAPRESP = overall product environmental responsibility

Thus, the mean *attitude* score indicated that airlines' environmental responsibility is not a decisive variable affecting their purchasing decision when travelling abroad. This result supports hypothesis H1. Purchasing ecological products or services did not seem to be high in their priorities either. By contrast, they agreed that flying with a modern fleet was an important purchase criterion for them. Participants of the survey also somewhat agreed with the statement that environmental aspects should be taken into account in all service components (such as food and other service articles) related to the flight experience. (Table 8.)

Spearman's rank-correlation test showed that there is moderate correlation between environmental responsibility of the airline and overall service product responsibility (r_s = 0.61, p < 0.0001), indicating that those who prefer to fly with environmentally responsible airline also feel that it should be reflect on the overall service experience in forms of sustainable inflight service articles. However, there seemed to be no correlation between environmental responsibility and flying with modern fleet (r_s = 0.19, p < 0.0001). Thus, respondents who choose their airline based on its environmental responsibility seem not to perceive the connection that the most environmentally responsible act an airline can do is to fly with modern fleet. (Fig. 14.) This finding supports hypothesis H2: *Airline passengers are not aware of the connection with environmentally responsible flying and flying with modern fleet.*

Attitudes towards pro-environmental behavior

ENVRESP A = environmental responsibility (attitude)
ECOPRODA = ecological products and services (attitude)
MF A = modern fleet (attitude)
OAPRESP = overall product environmental responsibility

Measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).
Data label 6 "Somewhat likely" is highlighted in the stacked bar to facilitate the interpretation of the figure.
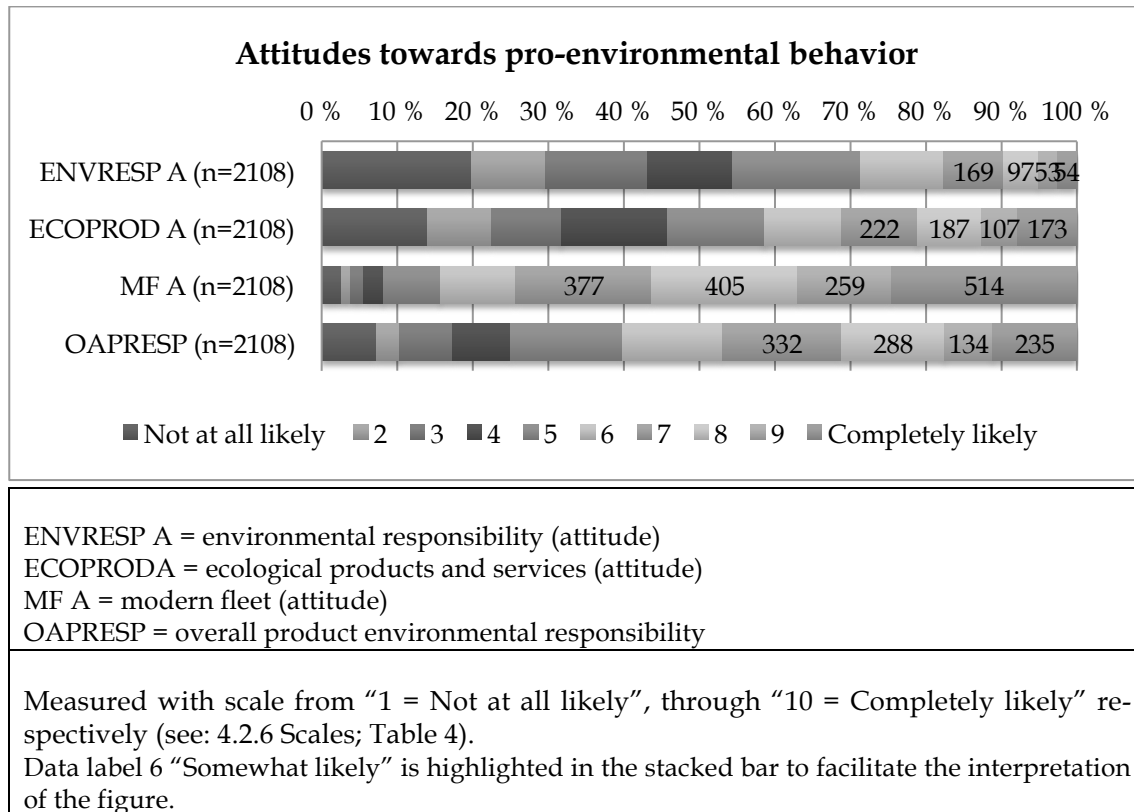
FIGURE 14 Attitudes towards pro-environmental behavior

5.2.2 Environmental aspects that affected previous purchase behavior

Factor related to *previous purchase behavior* measured the degree of emphasis that respondents put on environmental aspects in their air travel with three variables. These variables measured how the airline's social and environmental responsibility had previously affected their purchasing decision. In addition it tested whether the airline's modern fleet was a decisive variable for airline selection. Mann-Whitney test was carried out to examine whether there are any significant differences between gender and *past purchase behavior*. Gender differences were found in variables related to environmental and social responsibility, whereas not in variable related to flying with modern fleet. Although women were more sustainability oriented than men, the genders did not differ in respect to their opinion whether flying with modern fleet influenced their decision.

Independent-Samples Kruskall-Wallis test showed that there were statistically significant differences between the age groups when looking at how environmental responsibility has affected their past purchase behavior (Table 9). All three environmental factors had greatest impact on the oldest age group's (56 and older) past purchasing behavior. For the youngest age group (under 25) environmental and social responsibility had been more important than for age groups from 25 to 55. Again, the importance to fly with modern fleet in respondents' past purchase from an airline grew with age. (Appendix 2.B.)

TABLE 9 Variables related to past environmental behavior

Variable	Mean score	Standard deviation	Mann Whitney Z (gender)	Kruskall-Wallis X^2/ DF (age groups)
ENVRESP PB	5.1	2.5	6.3*	64.5/ 4*
SOCRESP PB	5.6	2.6	5.0*	81.1/ 4*
MF PB	7.2	2.3	-0.74ns**	203.2/ 4*

Means are measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).

*p < 0.0001, **ns = non significant

ENVRESP PB = environmental responsibility (past behavior)
SOCRESP PB = social responsibility (past behavior)
MF PB = modern fleet (past behavior)

The respondents past purchase behavior showed in light of mean scores that the *environmental* or *social responsibility* did not play any significant role in their past airline selection (Table 9 & Fig. 15). However, flying with modern fleet seemed to be high in their priorities in their previous purchase from an airline. Almost 80% agreed that modern fleet had affected their past purchase decision (Fig. 15).

ENVRESP PB = environmental responsibility (past behavior)
SOCRESP PB = social responsibility (past behavior)
MF PB = modern fleet (past behavior)

Measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4). Data label 6 "Somewhat likely" is highlighted in the stacked bar to facilitate the interpretation of the figure.
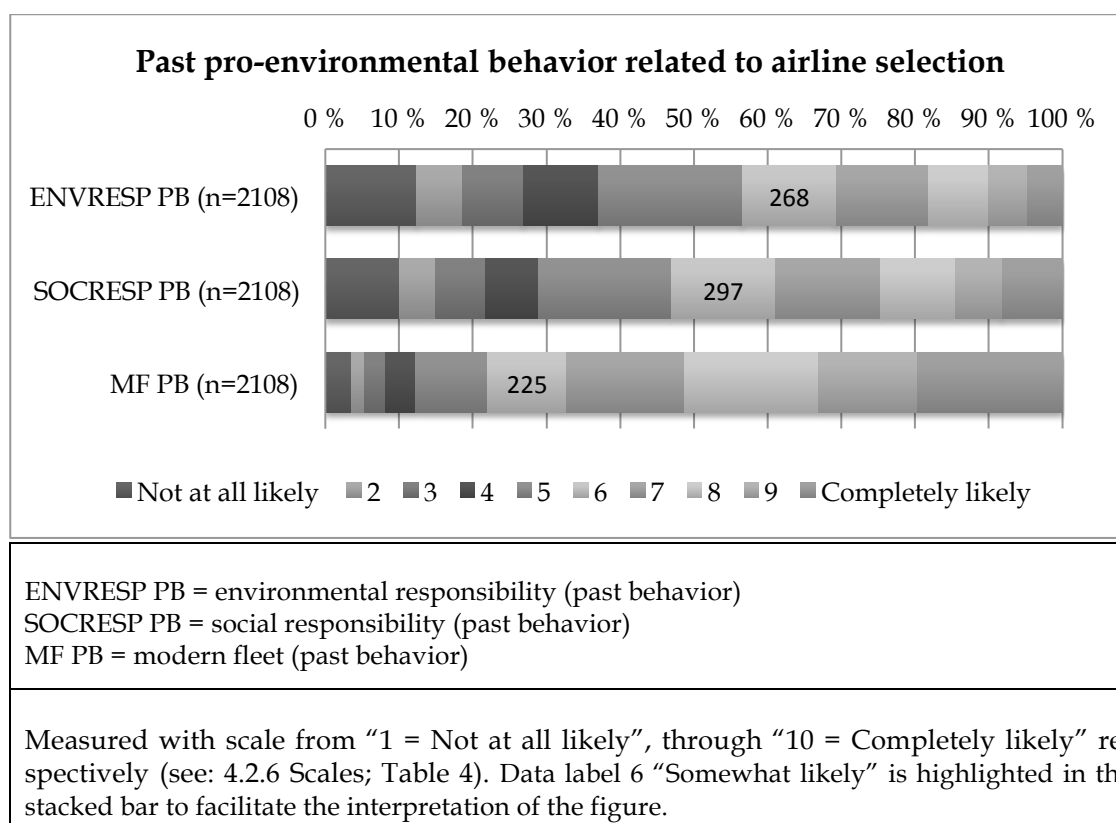
FIGURE 15 Past pro-environmental behavior related to purchase from an airline.

5.2.3 Perceived behavioral control

Perceived behavioral control of the respondents was measured by inquiring their opinions on airlines' environmental responsibility. This factor reflects the overall perception of the respondents about their perceived behavioral control regarding air travel by using binary scale (agree or disagree). Majority of the respondents (66.6%) reported that none of the airlines are environmentally friendly. Thus, relatively few of them perceive any possibilities to pursue pro-environmental behavior while purchasing from an airline. Spearman rank-correlation test showed that there were no significant difference between gender and *perceived behavioral control* ($r = - 0.02$, $p = 0.28$)

Logistic regression of perceived behavioral control on age groups revealed the respondents' perceptions on their ability to choose from an environmentally responsible airline differed significantly depending which age group they belonged to (Wald = 7.56, df = 1, $p = 0.006$). The oldest and youngest age groups showed "somewhat likely" to be able to choose an environmentally responsible airline to travel with (25 and under = 61.8%, 65 and over = 67.3%). By contrast, age groups from 26 to 55 reported "somewhat not likely" being able to choose an environmentally responsible airline to travel with (26-35 years = 36.6%, 36-45 years = 40.2%, 46-55 years = 36.8%). (Appendix 2. D.)

Variables related to this factor inquired respondents opinions about the selected airlines environmental friendliness. Finnair was perceived less environmentally friendly airline than SAS, only 6% claiming that Finnair is environmentally friendly, SAS respectively 10.4%. Generally, it seemed that the air travelers' perceptions about airlines' environmental friendliness went hand in hand with the respondents' brand recognition of the airline (Fig. 9 & Table 7). An interesting fact was that although 62.1% of the respondents disagreed with a statement claiming SAS having a modern fleet and 77.2% of them disagreed SAS being an environmentally friendly airline. The corresponding numbers for Finnair were 94% and 85,1%. Chi square test showed that 56.7% of those respondents who claimed that Finnair is environmentally friendly, only 23% perceived that the airline flies with a modern fleet. Respectively, the figures for SAS showed 66.9% and 40.4%. The more familiar they were with the airline, the better the airline scored in this question. These findings support both hypotheses H1 and H3.

The earlier presented statistics on this issue (pg. 15) showed that the actual average fleet age of SAS is 12 years, whereas Finnair's is 10.5 years. All in all, the scores in this question went hand in hand with the respondents' knowledge on the airline.

5.2.4 Self-identity and pro-environmental behavior

As earlier concluded in this study, the normative belief component is replaced with self-identity related questions in order to tell how people live up to their roles, hence try to approve one's behavior. Barr, Gilg and Ford (2005) found three groups forming a cluster of pro-environmental activities supporting "spill-over" effect that occurs when consumers extend their current PEB to new levels and areas from those they are already undertaking. These include *pur-*

chase decisions (clothes, electronics, etc.), *habits* (saving electricity, eating organic food) and recycling (paper, plastic, etc.). Consumers' travel behavior is scarcely studied regarding "spill-over" effect, however van Birgelen et al. (2010) in their study found that airline passengers' PEB in other areas than flying seem to continue this behavior in their air travel. Finally, Barr et al. (2005) came to the conclusion that these earlier mentioned three clusters are closely linked to consumers' values and consequently their self-identity and lifestyles. Thus, through variables that indicate the respondents' lifestyle with regard to sustainability this study intends to throw light on this issue reflecting on respondents' perceptions of their own self-identity.

Mann-Whitney U-tests revealed that males and females differed significantly in all but one self-identity indicators (Table 10). Mean Rank showed that females perceived themselves more environmentally conscious than males with regard to purchasing organic products, recycling domestic waste, cherishing nature, being concerned about the environmental aspects of the products they purchase and carbon offsetting when purchasing their flight tickets. Purchasing brands that reflect one's self-identity did not show any significance between males and females (Table 10).

Kruskall-Wallis tests showed that there were statistically significant differences between the age groups especially with regard to self-identity. Younger generations (under 25 to 35 years old) seemed to be more willing to prefer organic food products than the older age groups (36 to 56 years and older; Appendix 2.C). The preference to purchase brands that reflect one's self-identity declined significantly with age (Appendix 2.C). The oldest age group showed most interest in cherishing nature, as well as concern on the sustainability of the products they purchase. No significant differences were found between the age groups with regard to willingness to offset carbon emissions from one's own flying. (Appendix 2.C).

TABLE 10 Self-identity and pro-environmental attitude

Variable	Mean score	Standard deviation	Mann Whitney U Z	Kruskall-Wallis X^2/ DF
SUSTFOOD	5.3	2.8	-7.9*	20.0/ 4*
SIBRANDS	4.3	2.6	-2.0ns**	103.5/ 4*
RECYCLING	8.4	2.4	-4.9*	98.0/ 4*
CHERNATURE	7.3	2.1	-5.9*	36.2/ 4*
ENVRESPPROD	5.4	2.5	-7.0*	20.0/ 4*
CARBONOFFSET	4.3	2.8	-8.7*	5.2/ 4ns***

Means are measured with scale from "1 = Not at all likely", through "10 = Completely likely" respectively (see: 4.2.6 Scales; Table 4).

*p < 0.0001, ns** & ns*** = non significant

SUSTFOOD = sustainable food products
SIBRANDS = brands that reflect self-identity
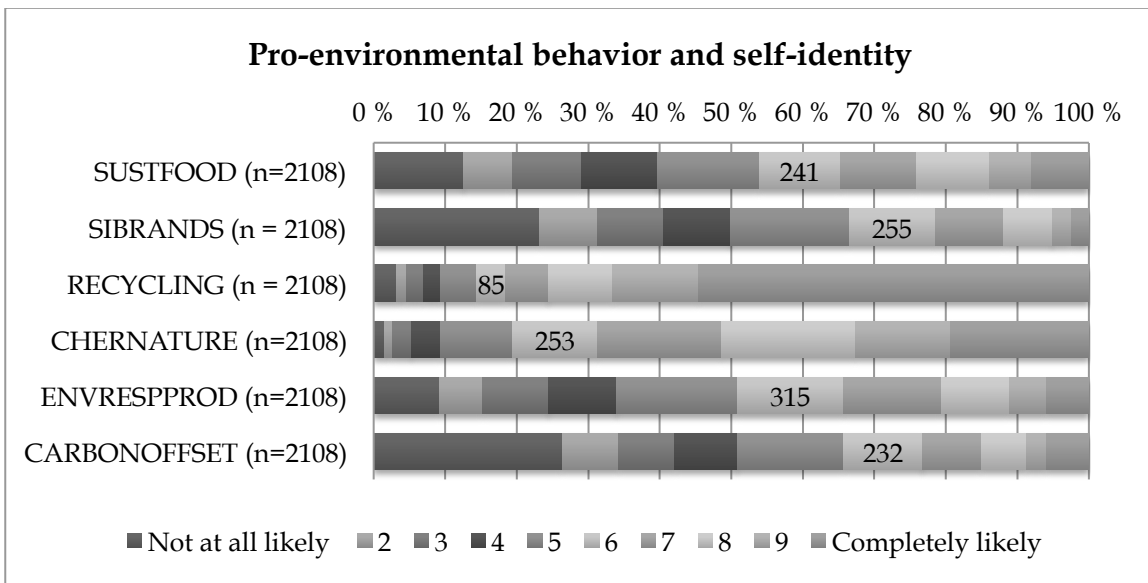RECYCLING = sorting and recycling of domestic waste
CHERNATURE = cherish of nature
ENVRESPPROD = environmentally responsible products
CARBONOFFSET = offsetting carbon emissions from flying

Purchasing organic or locally produced food was high in priority (scale 6-10) for 34.7% of the respondents (Fig. 16). By contrast, buying brands that support self-identity and consumers' own values was low in respondents' preferences. Only 21.4% of the respondents reported somewhat or completely agreeing with this statement (Fig. 16). Self-identity has been considered as a label that one uses for describing himself (Cook, Kerr & Moore, 2002).

Figure 16 shows that 85.6% of the respondents somewhat or fully agree with the statement claiming that they sort and/or recycle their domestic waste. Nordic countries have long traditions for recycling especially for the paper industry's purposes to use recycled paper for pulp production. Therefore the question is not necessarily about intentional PEB what comes to recycling. Sweden has been a forerunner also for establishing adequate recycling stations for households further supporting this PEB. By this the society has been able to re move major barriers related to this behavior. As many as 68.6% of the respondents reported to cherish the natural environment and 34,3% agreed (scale 6-10) that they take environmental aspects into consideration when purchasing home electronics, clothes, etc. Finally, when inquired about purchasing carbon compensation, the respondents indicated rather low scores in their habits in performing it. Only 23.2% were likely or completely likely to compensate their carbon footprint from flying. Hagmann et al. (2015, p. 42) in their study got similar results regarding carbon offsetting. They found that 23.8% of their respondents had used carbon-offsetting schemes. However out of 12 attributes stating airline passengers preferences, ability to green compensation were among the three least valued preferences with green initiatives and FFP.

Pro-environmental behavior and self-identity

	0 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	100 %
SUSTFOOD (n=2108)					241						
SIBRANDS (n = 2108)						255					
RECYCLING (n = 2108)	85										
CHERNATURE (n=2108)		253									
ENVRESPPROD (n=2108)				315							
CARBONOFFSET (n=2108)					232						

■Not at all likely ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■Completely likely

SUSTFOOD = sustainable food products
SIBRANDS = brands that reflect self-identity
RECYCLING = sorting and recycling of domestic waste
CHERNATURE = cherish of nature   (continues)
ENVRESPPROD = environmentally responsible products
CARBONOFFSET = offsetting carbon emissions from flying
Measured with scale from "1 = Not at all likely", through "10 = Completely likely" re-

spectively (see: 4.2.6 Scales; Table 4). Data label 6 "Somewhat likely" is highlighted in the stacked bar to facilitate the interpretation of the figure.

FIGURE 16 Pro-environmental behavior and self-identity

5.3 Underlying factors affecting airline passengers' intention to purchase

Factor analysis was performed to gain a more integrated understanding of factors affecting airline passengers' intentions to purchase an environmentally responsible air travel. The large sample size gives excellent grounds to support factor analysis. Kaiser-Meyer-Olkin –measure was 0.86, which exceeds the suggested minimum value of 0.6 and Bartlett's Test of Sphericity rejected the null hypothesis, where all diagonal elements are 1 and off diagonal are 0 (UCLA 2015). Variables needed to pass validity test for communalities where correlations had to be greater than value of 0.3. Excluded variables from the analysis failing the validity test were: *gender* (r = -0.65 to 0.19) and *perceived behavioral control* (r = -0.024 to 0.29). After removing the two excluded variables, an Oblimin rotation was used to achieve more accurate and interpretable solution from the analysis. Factor analysis extracted three components (with Eigenvalues > 1) that loaded on same factors and accounted for 64.5% of the variance in the data (Table 11).

TABLE 11 Rotated component matrix.

	Component		
	1	**2**	**3**
ENVRESP A	**0,818**	0,117	0,371
ECOPROD A	**0,605**	-0,105	**0,722**
MF A	0,308	**0,80**	0,23
OAPRESP	**0,776**	0,26	0,477
ENVRESP PB	**0,878**	0,229	0,356
SOCRESP PB	**0,807**	0,259	0,238
MF PB	0,311	**0,826**	0,09
SUSTFOOD	**0,533**	-0,139	**0,769**
RECYCLING	0,151	0,272	**0,712**
CHERNATURE	0,421	0,191	**0,796**
ENVRESPPROD	**0,645**	-0,065	**0,752**
CARBONOFFSET	**0,617**	-0,013	0,398
Age groups	0,06	**0,647**	0,105

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

(continues)

TABLE 11 (continues)

ENVRESP AY = environmental responsibility (Finnair) SOCRESP AY = social responsibility (Finnair) LP AY = offers low prices (Finnair) HIQJCL AY = offers high quality business class (Finnair) FFP AY = frequent flyer program (Finnair) PUNCT AY = punctual flight operations (Finnair) MF AY = flies with modern fleet (Finnair) CLEAFRE AY = clean and fresh aircraft (Finnair) US AY = offering unique services (Finnair)

The rotated component matrix showed that Component 1 explains 40.8% of the variance and it loads strongly on variables from three different constructs associated with the modified TPB (attitudes, past behavior and self-identity). Component 2 accounts for 14.5% of the variance and the variables represent attitude and past behavior construct, added with age variable. Finally, two variables (attitude and self-identity) load strongly on Component 3, which is responsible for 9.2% of the variance in the data. Table 11 outlines the identified explanatory variables associated with each component.

5.3.1 Green believers

As previously mentioned, the first component explains 40.9% of the variance in the data, loaded on variables related to *attitudes, past behavior and self-identity. Attitudes* loaded strongly on environmental responsibility variable (ENVRESP A; r = 0.82), which indicates that for this group of airline passengers the environmental responsibility of the airline is an important driver in their airline selection. Interestingly, variables associated with flying with modern fleet (MF A, r = 0.31 and MF PB, r = 0.31) did not load strongly on this component. This indicates once more that the respondents did not see clear connection with environmentally responsible flying and flying with modern fleet. Furthermore, the scores suggested that the airline passengers associated with this component are likely to take environmental aspects in consideration in their other purchases as well. These include preference to buy ecological products and services (ECOPROD A, r = 0.61; SUSTFOOD, r = 0.53) and overall concern about the environmental aspects related to the products they purchase (ENVRESPPROD, r = 0.65). They also show interest in compensating the carbon footprint from their air travel (CARBONOFFSET, r = 0.62). For the wide spectrum of environmental commitment this cluster was named the *Green Believers*. No age group loaded significantly on this component (Age groups = 0.06). (Table 11.)

5.3.2 Quality seekers

The second component explained 14.5% of the variance in the data. Three variables loaded on this factor passed the minimum correlation coefficient requirement (r > 0.6). The *attitude* variable addressed to strong preference to purchase from a carrier with a modern fleet (MF A, r = 0.80). The *past behavior*

variable referred to having strongly prioritized an airline with a modern fleet in their previous purchase decision (MF PB, r = 0.83).

Age groups loaded on this component (r = 0.65) indicating that preference to fly with a modern fleet increased with age. With statement *preference to fly with modern fleet* (MF A), 92.3% of the oldest age group somewhat or fully agreed, whereas comparable figure for the youngest age group was 63.2%. With respondents *previous purchase* from airline (MF PB) the corresponding figures for preference to fly with modern fleet were 87.2 % and 55.9 % respectively. This cluster was named the *Quality Seekers*.

Previous tests in this study have showed evidence that the correlation between flying with a modern fleet and choosing the airline based on its environmental responsibility should be examined. A Spearman rank-correlation test indicates that there is no significant correlation between choosing an airline based on their environmental responsibility (ENVRESP A) and preference to purchase from an airline with a modern fleet (MF A; r_s = 0.19, p < 0.0001). Moreover, any other variables associated with PEB did not load significantly on this component either. Again, these results support hypothesis H1. (Table 11.)

5.3.3 Roamers

The third and last component loaded on mainly on variables related to the respondents' self-identity, showing preference to buy organic food products (SUSFOOD: r = 0.77), diligence in recycling and sorting domestic waste (RECYCLING: r = 0.71), cherish towards the natural environment (CHERNATURE: r = 0.80) and concern in choosing environmentally responsible products whenever possible (ENVRESPPROD: r = 0.75). Moreover, they reported positive attitude towards buying ecological products (ENVRESP A = 0.72). This cluster explained 9.2% of the variance in the data.

Choosing to fly with an environmentally responsible airline did not seem to be in their priorities (ENVRESP A: 0.37). This indicates that this group of individuals does not see any possible connection between environmental responsibility and flying, or alternatively, they have not yet extended their PEB to their air travel due to their eco-illiteracy with regard to this issue. This component rejecting the idea of "green flying" and pursuing to cherish the nature was named *"The roamers"*. No age group loaded significantly on this component (Age groups = 0.11). (Table 11.)

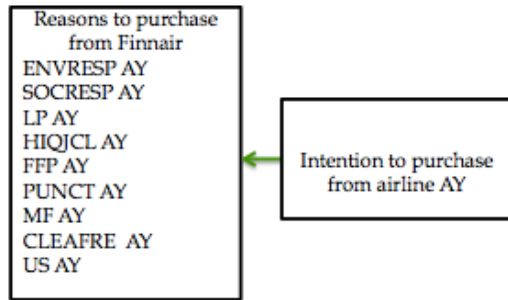## 5.4 Decisive attributes for purchasing from Finnair

FIGURE 17 Factors affecting intention to purchase from Finnair (AY)

As the analysis presented above indicate, environmental responsibility is not the primary driver for choosing an airline. Thus a multiple linear regression analysis was performed to find out which variables are likely to drive the airline passengers purchasing behavior towards purchasing from Finnair. This *predictive modeling* would help Finnair to identify the factors that they could use for diffusing the environmental responsibility theme in different elements of their service offering.

The regression analysis used *intention to purchase from Finnair in the following months* as response variable and attributes evaluating Finnair's brand (environmental and social responsibility, low prices, high quality business class, good loyalty program, punctuality, modern fleet, clean and fresh aircraft and services that other airlines do not offer) as explanatory variables.

The data full-filled assumptions of regression analysis: correlations between the explanatory variables were low (highest $r = 0.553$) suggesting no problems with multicollinearity, and residuals from the model approximately normally distributed. The model was highly significant ($F = 19.93$, $df = 9.0$, $p < 0.0001$), and the multiple R -value was 0.081 indicating that the model explained 8.1% variation in intention to purchase from Finnair.

TABLE 12 The results of the regression analysis.

Variable	Unstandardized Coefficients	Std. Error	t-value	Significance
Constant	2,505	0,061	41,324	0
LP AY	1,135	0,208	5,454	0
HIQJCL AY	0,626	0,218	2,871	0,004
PUNCT AY	0,52	0,151	3,436	0,001
CLEAFRE AY	0,573	0,137	4,188	0
US AY	0,79	0,309	2,56	0,011

LP AY = offers low prices (Finnair)
HIQJCL AY = offers high quality business class (Finnair)
PUNCT AY = punctual flight operations (Finnair)
CLEAFRE AY = clean and fresh aircraft (Finnair)
US AY = offering unique services (Finnair)

The model identified five explanatory variables, which were significant predictors of intention to purchase from Finnair: low prices (LP AY), high quality business class (HIQJCL), punctuality (PUNCT AY), clean and fresh aircraft (CLEAFRE AY) and services that other airlines do not offer (US AY: Table 15).

Coefficients and regression formula were applied to make a prediction of the dependent variable. The calculation was made by using value "10" (scale from 1 to 10) as a multiplier for all of the variables.

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5$$

$$y = 2.505 + 1.135*10 + 0.626*10 + 0.52*10 + 0.573*10 + 0.79*10 = 38.95$$

Taking into account the sample error and variability of the data with a confidence interval:

$$38.95 \pm 1.96 \times 2.21 = 34.59 \pm 43.30$$

Hence, even in case all airline passengers would give highest possible score to all variables measuring the drivers that affect Swedish airline passengers' intention to purchase from Finnair, the predicted probability does not yield to more than 43.3%. This indicates that multiple regression model, in this case, can only provide approximate results. Rather than providing predictability to purchase intention, it only gives suggestions what Finnair should take into account when planning their marketing-mix. Firstly, the respondents earlier reported that they prefer to fly with modern fleet. However, modern fleet seems not to be a driver for them to choose Finnair who has one of the most modern fleets in Europe. Thus, it seems that the respondents are eventually not aware of this fact. Secondly, a *high quality business class* and *services that other airlines do not offer* could be the drivers for purchasing intention that Finnair could capitalize on when developing their green offering.

6 DISCUSSION

This thesis intended to study what kind of impact an airline's environmental responsibility has on Swedish airline passengers' intention to purchase. The author used Ajzen's theory of planned behavior as a framework to investigate the respondents' intended PEB with regard to their purchasing behavior. Moreover, sustainability marketing mix formed the other part of the theoretical framework to offer Finnair tools to target its existing, as well as potential customers, with a suitable sustainability-marketing proposal. This chapter also takes stand in the validity and reliability, as well as limitations of the study. Finally, it gives recommendations for further studies related to the topic.

6.1 Ajzen's TPB and Swedish airline passengers intention to purchase

The data analysis tested each construct of Ajzen's TBP to provide insights on how the theory meets the reported results. According to the theory, "*the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question.*" (Ajzen, 2006, p. 1). Hence, this sub-chapter assesses the results of each construct in order to evaluate the respondents' intention to purchase.

The *attitudes* towards intentions to purchase from an environmentally responsible airline are twofold. On one hand, environmental or social responsibility, as such, were not the decisive drivers for airline passengers' purchase intention. Only those few, such as the *Green Believers*, who have strongly engaged with PEB tend to make their purchasing decision purely based on the airlines' environmental performance. On the other hand, as many as 73.8% of the respondents indicated that it is important that the airline flies with a modern fleet. As the most sustainable way to fly is to fly with a modern fleet, in fact, many of the respondents unintentionally showed strong pro-environmental attitude in their responses by preferring to purchase from an airline with a modern fleet without actually associating it with PEB. Even the *Green Believers* did not seem to be aware of this. These findings support hypothesis H2. Moreover, the airline

passengers reported that it is even more important that the service components related to the flight experience reflect environmental responsibility, than the overall environmental responsibility of the airline when purchasing. This finding indicates that the airline passengers could probably be more willing to purchase from an environmentally responsible airline if they would know how to assess its environmental performance. Currently, they only seem to be able to perceive the environmental sustainability of the service products, as they have the needed eco-literacy to assess the environmental performance of those. The *attitudes* towards intentions to purchase showed that a modern fleet and environmentally sustainable service products are the relevant drivers with regard to attitude component.

Airline passengers' *past purchasing behavior* variables related to PEB measured some of the same variables that were measured in the *attitude* component. Environmental and social responsibility of the airline had affected the respondents' previous purchasing decisions more than their current intention to purchase. The reason for this could not be identified. Flying with a modern fleet, by contrast, was a significant driver for airline selection also in their *past purchasing behavior*, which indicates again that this is a factor that resonates with the consumers. Moreover, it should be more clearly associated with environmental responsibility theme to leverage the maximum marketing potential from this proposal.

Respondents' *perceived behavioral control* showed that majority of them (66.6%) does not perceive that there would be a possibility to travel with a more environmentally friendly airline. The general lack of perceived control to perform the behavior obviously weakens the intention to purchase significantly. This could only be tackled by promoting consumers accurate information about the environmental aspects that affect airlines' environmental performance. The essential finding here for Finnair is that they could promote their environmental responsibility by communicating about the importance of flying with modern fleet and flying the shortest routes from Sweden to Asia. This way they could also improve their rather low brand recognition in Sweden.

Finally, the respondents' *self-identity* component revealed respondents' high commitment in recycling and sorting domestic waste as well as conserving the natural environment, whereas their interest in taking environmental aspects in concern in their overall purchasing behavior was significantly lower. The respondents were not enthusiastic to engage with voluntary carbon offsetting, which indicates that air travelers perceive it is the airlines' responsibility in the first place. The respondents also disagreed buying brands that reflect their self-identity. The interest in this theme seemed to decrease by age. Also, what might have affected the result in the author's opinion the question may have been somewhat vague and complex, as it could be interpreted in multiple ways.

When applying the results of this study to Ajzen's TPB it is rather obvious that airline's environmental responsibility, as such, is not a driver for purchasing intention from an airline. These results support hypothesis H1. Thus, based on the previously mentioned findings, it is not likely that any airline would gain competitive advantage, at least in the Northern Hemisphere, by position-

ing itself as an environmentally responsible airline in the current market environment.

What comes to the theory itself, the results of this study reflect the intentions of behavior (to purchase) and are aligned with the previous studies on this topic (e.g. van Birgelen et al., 2011 and Chen et al., 2011). The results of this study suggest that past PEB (in this case related to purchasing behavior) is a valid construct to predict intention of similar pro-environmental behavior, provided that the three original constructs are taken into account as well. Pro-environmental performance was perceived higher by those who had flown with the particular airline, than those who had not. A good example of this phenomenon was SAS who received highest scores among all airlines selected to this survey, which was conducted in their home market. Number of respondents reported that a modern fleet is one of the most important criteria for choosing an airline, while agreeing that SAS has an old fleet. They still tended to give the highest preference for SAS in their airline selection. The results of this study support findings in a previous study conducted by Hagmann et al. (2015), which claims that brand recognition improves the airlines' pro-environmental performance in the consumers' eyes. Throughout the survey SAS tended to achieve highest scores in questions associated with their brand. This could also indicate that there may be underlying patriotic emotions affecting the results.

Out of the eight airline brands that were surveyed in this study, SAS had the highest brand recognition among them. Eventhough the respondents perceived SAS having an old aircraft fleet they perceived them to be the most environmentally responsible airline out of all participants of this survey. This supports hypothesis H3. Thus results of this study also support the fact that the preference towards an airline correlates with their brand recognition.

6.2   Finnair's sustainability segments in Sweden

In this study, sustainability segmentation was performed by conducting a factor analysis based on the attitude variables related to environmental issues. According to Assael (2004, p. 222) by using attitude variables in segmentation, the marketer gains valuable information to be used in product innovations and in promoting their environmental responsibility. The factor analysis identified three clusters for which different sets of environmental attributes speak positively: *Green Believers, Quality Seekers and Roamers*. These three clusters provide Finnair with information on how to target their existing and potential new sustainably conscious consumers.

The first group, the *Green Believers*, reported that they actively seek possibilities to conduct PEB in their daily lives. This group takes the environment into account in multiple ways in their activities. They prioritize environmentally responsible products and services in their purchases. They are also willing to compensate the emissions from their flying with carbon offset. For the marketer, the members of this group could be seen as a potential advocates for their business. This segment did not acknowledge the connection between flying with

modern fleet and reduced environmental impacts of the flight. By raising awareness of this issue would help Finnair to raise their profile as an environmentally responsible airline among this segment. Green Believers, in turn, in their advocate role should be seen as significant influencers in terms of enhancing the subjective norm that has been claimed to be an important determinant for PEB intentions (Ajzen, 1991).

The second identified cluster was the *Quality Seekers* that appeared to be the oldest age group (56 years and over) that value comfort and quality over environmental issues in their purchasing behavior. They became selected as a sustainability segment as they reported the modern fleet being their primary reason for airline selection, both in past and the future. This hedonistic segment showed also low price sensitivity, hence they are potentially the ones who would be willing to pay premium for the services they value the most.

Finally, the *Roamers* were the "true greens" that seemed to have a genuine concern on issues related to natural environment, which also showed in their responses. They seemed not to acknowledge that there could be environmentally responsible way to fly as they did not indicate to prefer to fly with modern fleet. Presumably, with meaningful and accurate information on ways how an airline can considerably reduce their emissions, this group could shift their purchasing intentions towards a carrier offering an environmentally responsible way to fly.

An additional regression analysis was performed to gain a more comprehensive understanding on the factors that do affect the Swedish airline passengers purchasing decision. Despite of the methods shortcomings with regard to this study, the approximate results seemed to be plausible comparing them with the results of the data analysis of this study. Regression analysis indicated that Finnair's environmental responsibility is not the decisive factor for purchasing from the airline. Instead, the analysis suggested that three most decisive attributes for choosing Finnair for respondents' next air travel were *low prices, high quality business class, punctuality, clean and fresh aircraft,* as well as *offering services that other airlines do not offer*. By taking these factors into account in the marketing implications and combining them with the environmental sustainability theme, Finnair could differentiate and gain more visibility, as well as acquire more market share in the Swedish market.

6.3   Marketing implications

The marketing research showed that there are several opportunities for an airline to meet, or even exceed the expectations of its passengers, with aid of its sustainable marketing-mix. Furthermore, to find ways how to enhance the *"spill-over effect"* that implies to extending PEB also to affect the airline passengers purchasing behavior regarding their air travel could help an airline like Finnair to differentiate by promoting their environmental responsibility.

This study could not specify a *green airline passenger* with demographic factors, such as age or gender. Both factors were context dependent and there was

some significant variation within the different demographic groups. Overall, females were found more environmentally conscious than males. In general, it can also be said that that respondent's PEB increased with age. However, it is good to acknowledge that the elderly airline passengers' preference to fly with modern fleet was higher than the younger ones, thus it caused a significant increase in the scores associated with PEB for the benefit of the elder. Also within large sample size even small variations in the population become easily statistically significant.

6.3.1 Customer solution and communication

Finnair should develop an effective campaign to raise *awareness* about environmentally responsible flying in the Swedish market and *inform* them about the airline's eco-efficiency, as well as about the efforts Finnair does to further improve it. As the study showed, there is still plenty of work to do to acquire customers from the Swedish market by promoting Finnair as the modern and eco-efficient alternative to fly to over 10 destinations in Asia. Thus, the company should make efforts to *persuade* new customers to use the services and *reassure* those having tried the service that they made an eco-smart purchasing decision. In sustainability communication a special emphasis should be set on *motivating* them towards "green behavior" and *rewarding* them about it. A loyalty program is an efficient platform for this purpose offering a number of ways to reward customers of their PEB. Finnair should place an extra effort developing their FFP in Sweden and recruit more members to it.

The company seems to have two salient messages to use as a platform for the Ecosmart marketing campaign: the new eco-efficient A350 XWB aircraft entering the fleet in fall 2015 and being the first European airline to have a certified EMS especially designed for airlines by IATA (IEnvA Program). The main message should be built around the fact that the most environmentally sustainable act from an airline is to fly with a modern eco-efficient fleet. The new A350 XWB offers a powerful tool for this with its superior eco-performance compared to its predecessors. Communicating about the EMS, in turn, would tell the story about how the airline manages its environmental issues in a systematic and coherent manner by pursuing continuous improvement in environmental sustainability. In addition, Finnair should not forget to communicate about the fact that by taking the shortest route from Northern Europe to North East Asia with on their flights, airline passengers can significantly reduce their carbon footprint from flying compared to many other airlines.

As earlier stated in this study, the influence of descriptive and injunctive norms play an important role when encouraging consumers to adapt PEB. There are several possibilities how Finnair could influence these norms in their marketing efforts. Probably the most powerful way would be to involve a credible and recognized Swedish spokesman in a marketing campaign. Publishing blogs and encouraging bloggers to write about the environmentally responsible air travel would be an effective channel as well as blogs are about grouping and belonging. Articles in the inflight magazine and inflight videos could effectively provide more detailed information on the earlier mentioned main messages.

For a backbone of its environmental responsibility, Finnair should continue providing environmental disclosure for its stakeholders in order to build trust and communicate about the progress of its environmental performance. It should also establish a network where to conduct open sustainability dialogue with its stakeholders.

6.3.2 Customer convenience and cost

The results that referred to airline passengers *intention to purchase when offering direct flight route* showed that intention to fly with Finnair would increase the most, out of all the airlines included in this study, in case they could offer direct flights from the destinations where the airline passenger is intending to travel from. This implies to promoting the fast, uncongested and convenient connections via Helsinki. Finnair could grow their market share in Sweden by convincing the Swedish air travellers how their flights with modern fleet and fresh cabin interiors to Asia bring added *convenience* and *ease* to the traveler. This proposal would be based on Finnair's extensive route network and geographically optimal location for customers travelling from Sweden to Asia guaranteeing shortest routes to several destinations with a modern eco-efficient fleet. This appropriate location of the airline hub also translates to less CO_2 emissions and considerable *timesaving* while the customer is flying to right direction when taking a long haul flight to Asia.

Based on the data, Finnair's environmental responsibility in general does not provide the kind of value proposition that would make the Swedish passengers to pay more about their air travel. However, indirect payment as the study showed, through Finnair Plus FFP the company could provide added value to the environmentally conscious loyalty customers. Firstly, Finnair should find attractive partners from the causes associated with nature conservation to which their FFP members could donate their award points. They should also develop a mechanism where environmentally conscious loyalty customers could automatically donate all, or some fraction of their award points to causes associated with nature conservation. Secondly, they should also investigate possibilities to enable the donated award points to be used for carbon offsetting. The possibility to transfer the customer's award points to the company's Emission Trading Scheme could be an interesting opportunity worth investigating. Finally, when considering the current awarding system, it rewards the customers who fly the most miles. For instance, an airline passenger maximizing his FFP (mileage) award points benefits from transferring in Copenhagen instead of Helsinki when flying to Asia. This should be taken into account when restructuring the mileage award points in the future. An environmentally responsible act from an airline would be to reward their customers for flying the shortest route.

Again, referring to the Swedish air travelers' reported preference to fly with modern fleet and their valuation regarding clean and fresh aircraft interiors, the new eco-efficient Airbus A350 XWB aircraft that entered the fleet in October 2015 could offer a value proposition for Finnair. The new aircraft could offer Finnair a possibility to internalize the incremental cost of the new eco-

efficient technology in higher airfares. Although this would most likely be possible only during the first months of operations when the aircraft's novelty value would still be high.

6.4 Reliability and validity of the research

The reliability of a research requires other researchers to be able to repeat the same results that resulted from the particular study (Vilkka, 2007). SPSS Statistics program was used to perform the data analysis. Another person with the same data repeated results from these analyses and they were found identical.

The survey was conducted in Sweden, thus the results reflect that market at that particular time. They may give guidance about the current situation, but cannot be generalized. The sample size of the survey (n = 2018) was sufficient with regards to acquire reliable results to present this population. When performing data analysis the large sample size posed some challenges too. E.g. even small changes between age groups easily showed significance in large sample size.

Air travellers' intentions to purchase from an environmentally responsible airline may change along the time depending on the changes in the airline industry's developments and how they affect the general attitudes among the population.

The *internal validity* of the study implies to being able to show the relationships of cause (independent variable) and effect (dependent variable) as well other factors (confounding variables), aiming to give evidence that this study contributed to the results (Shuttleworth, 2009). The theory, Ajzen's TPB, was employed to show clear evidence of Swedish airline travellers' intentions to purchase from environmentally responsible airline.

What comes to *construct validity*, it was only partly proved, as the constructs did not accurately measure all the intended variables (Shuttleworth, 2009). Respondents' attitudes towards environmentally responsible travel were measured by asking their preference to purchase from an airline with modern fleet. However, the results verified from various aspects that the respondents did not perceive a connection between modern fleet and environmentally responsible travel. Again, rest of the constructs provided significant support to resolve the research problem and gave clear answers to the sub-questions.

6.5 Limitations of the study

As earlier discussed, the components included in the study seemed to support the theory result wise. However, the interrelation of these constructs remained unclear – which one of them is the most decisive and why regarding the intention to purchase and moreover the actual behavior. The empirical evidence to support the results is not available, as none of the airlines have branded themselves as environmentally responsible operator. What comes to the structure of

the questionnaire, it did not fully follow the standards defined by Ajzen. As previously mentioned, besides adding two additional constructs (past behavior and self-identity), the salient shortcoming was the lack of question/s inquiring the subjective norms that would take into account the significant others' opinions towards the behavior.

When analyzing the results, the author found online survey not the best method to measure the consumers' environmental concern. Firstly, the researcher could not verify the level of the respondents' ecoliteracy. For instance, in the questionnaire there were several questions related to *modern fleet* referring to the improved eco-performance of the airline. Instead of acknowledging this, they perceived it as an attribute related to superior travel comfort. Sometimes also respondents' knowledge on sustainability terminology may be limited. E.g. social and environmental responsibility may translate to different meanings for different respondents. Secondly, as sustainability is a rather complex issue, thus it would be beneficial for the researcher to be able to address clarifying questions directly to the respondents in order to allow them to specify their answers e.g. on complex questions.

6.5.1 Suggestions for future research

As the study showed, none of the airlines seem to differentiate based on their environmental responsibility. Also the connection between modern aircraft and environmental performance seemed to be missing. Based on these findings, it would be interesting to measure the changes within similar sample after Finnair's 'Ecosmart' marketing campaign. The issues under special interest would be: how the intention to purchase changes, and was the campaign able to educate its audience up to sufficient degree about the connection between flying with modern fleet and environmental responsible air travel. As earlier noted in this study, the previous studies have shown (Testa et al 2013) that the consumers' intention to purchase has been found to increase with the knowledge related to the products' or services' environmental performance. Moreover, the effect of perceived behavioral control on intention to purchase would bring a needed dimension to support the theory and shred more light on the underlying affecting factors associated with this issue.

Another interesting path for future study would be to gain a better understanding about the factors that affect airline passengers' perceptions on the airlines' environmental brand image. Personally, the author would be interested to conduct research on how a green brand image of an airline increases the airline passengers' WTP.

6.6   Conclusions

The aim of this study was to find out whether the environmental responsibility of an airline affects the airline passengers' intention to purchase. More specifi-

cally it focused on how airline passengers attitudes, past purchase behavior, self-identity and perceived behavioral control influences the intention to purchase. The results of the study indicated that the fundamental challenge in assessing the airline passengers' perceptions on airlines' environmental performance lies in their eco-illiteracy. The airline passengers seem not to acknowledge that the most environmentally responsible way to fly is to fly with modern aircraft. As long as airline passengers cannot perceive any differences between the airlines' environmental performance, and thus, lack perceived behavioral control, it is not likely that any airline could gain competitive advantage by being profiled as an environmentally responsible airline.

Hence, in terms of defeating the lack of perceived behavioral control and enhancing the pro-environmental attitude of the airline passengers, the most important measure Finnair should take is to raise awareness on the airlines' environmental performance by highlighting their modern fuel-efficient fleet. Also targeting the identified sustainability segments with adequate service concepts helps Finnair to engage new customers in the Swedish market whose WTP may be higher than those of average airline passengers'. All in all, the past behavior and self-identity constructs indicated that Swedish airline passengers are environmentally conscious consumers, who value comfort, quality and easiness in their travel experience. With regard to the gap between environmental attitudes and behavior, based on this study Finnair seems to have all needed elements to help the airline passengers to close this behavioral gap by employing its marketing-mix that offers some powerful tools and service concepts to extend the airline passengers PEB also to flying.

What comes to the future of sustainability marketing in aviation industry, the deployment of biofuels may offer new avenues for the marketers to promote themselves as environmentally responsible airlines. However, as long as the airlines use fossil fuels there is no airline that could claim, not to mention promote, itself boldly as a "green" airline.

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APPENDICIES

Appendix 1. The Ecosmart survey questionnaire.

Question ID	Question	Type of question
BG1	Are you male or female?	Background question
BG2	Which year were you born?	Background question
SCREEN_1-6	The number of your trips abroad during the past 12 months (scheduled/charter flights)?	Screening questions
Q1_1-10	Which airline would you choose if you would travel abroad?	Warm-up question _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways, _09 none, _10 some other, which one?
Q2_1-3	What are the three most important criteria in your airline selection?	Warm-up question

(Continues)

Appendix 1. (Continues)

Q3_1-10	Which airline is environmentally responsible?	Warm-up question _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways, _09 none, _10 some other, which one?
Q4_1-8	How well do you know these airlines?	Warm-up question _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways
Q5	Which airline did you choose last time when you travelled abroad?	Warm-up question
Q6_1-8	How likely will you travel with these airlines during the following months?	Warm-up question _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways
Q7_1-8	If all of these airlines offered direct flights to your intended destination, how likely you would choose this airline?	Warm-up question _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways

(Continues)

Appendix 1. (Continues)

| Q8_1	I choose my airline based on their environmental responsibility.	Attitude
Q8_2	I choose my airline based on their social responsibility.	Attitude
Q8_3	I prefer to purchase from airlines with modern fleet.	Attitude
Q8_4	When purchasing an air travel it is important that also inflight service products (meals, amenities, etc.) reflect environmental responsibility of the airline.	Attitude
Q9_1-9	Previous time you flew, when choosing the carrier how important factor was it for you that: _1 they were environmentally responsible _2 they were socially responsible _3 they offered low airfares _4 they had a high quality business class _5 they had a good FFP _6 they were punctual _7 they flew with a modern fleet _8 their planes were modern and fresh _9 they offered services that other airlines do not offer	Past behavior
Q10_1-9	_1_01-09 environmentally friendly _2_01-09 socially responsible _3_01-09 offers low airfares _4_01-09 has a high quality business class _5_01-09 has a good FFP _6_01-09 is punctual _7_01-09 has a modern fleet _8_01-09 cabin interiors are clean and fresh _9_01-09 offers services that other airlines do not offer	Perceived behavioral control _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways, _09 none

(continues)

Appendix 1. (Continues)

Q11	How adequate/attractive do you find the following airline's Frequent Flyer Program (FFP)?	Loyalty _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways
Q12_1-6	Which of the following claims match with the respective airline's FFP: _1_01-09 offers bonuses/points to use for flights with… _2_01-09 offers attractive discounts with other service providers (insurance companies, telephone operators, etc.) _3_01-09 focuses on sustainability _4_01-09 offers access to lounges at the airport _5_01-09 offers a priority check-in _6_01-09 offers a priority boarding	Loyalty _01 Finnair, _02 SAS, _03 Lufthansa, _04 Air France-KLM, _05 Norwegian, _06 British Airways, _07 Air China, _08 Qatar Airways, _09 none
Q13_1-11	_1 I mostly purchase organic and locally produced food items. _2 I look for brands that reflect my self-identity. _3 I sort and recycle my domestic waste. _4 I live an active life and work out. _5 I try out/buy new gadgets before others. _6 I prefer to buy private labeled brands. _7 I cherish the natural environment _8 I am concerned about the environmental aspects of the products I purchase. _9 I think it is worth to pay more for quality items. _10 I am willing to pay more for good service. _11 I offset my carbon footprint from flying when paying for flight tickets.	Self-identity

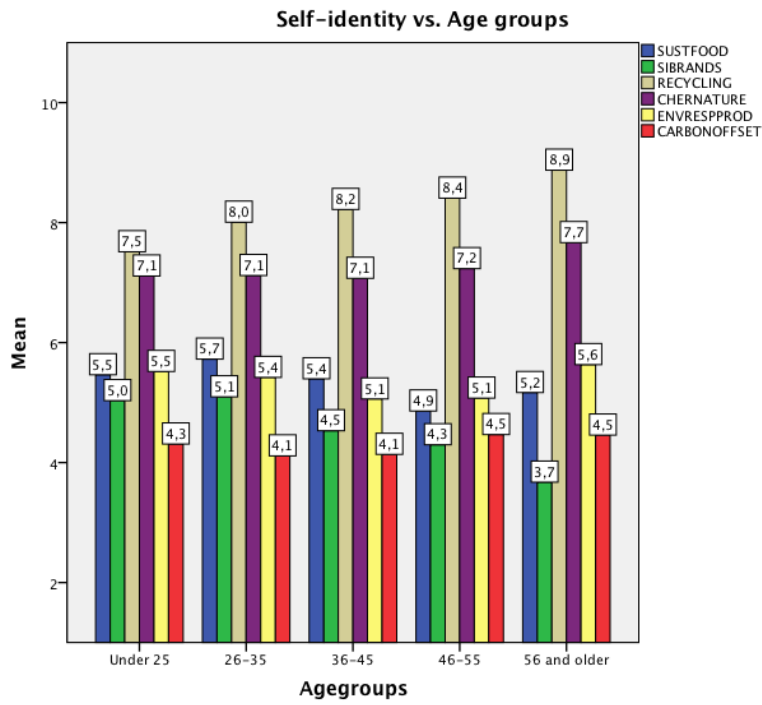Appendix 2. Comparing independent variables with age groups

A. Attitudes vs. Age groups
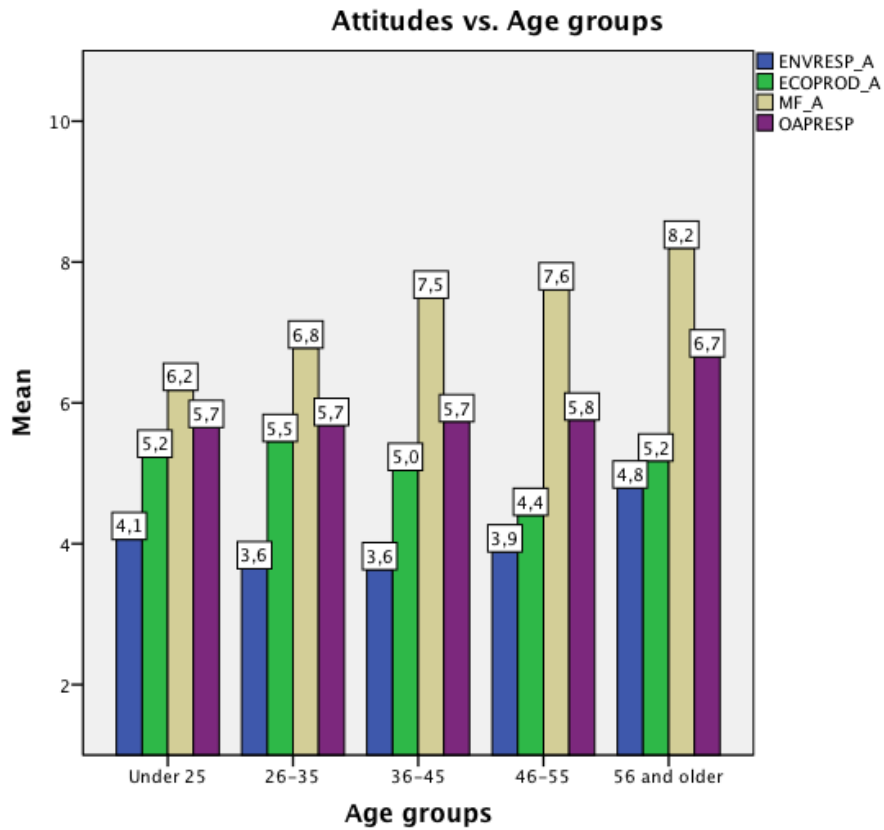
B. Past pro-environmental behavior vs. Age groups
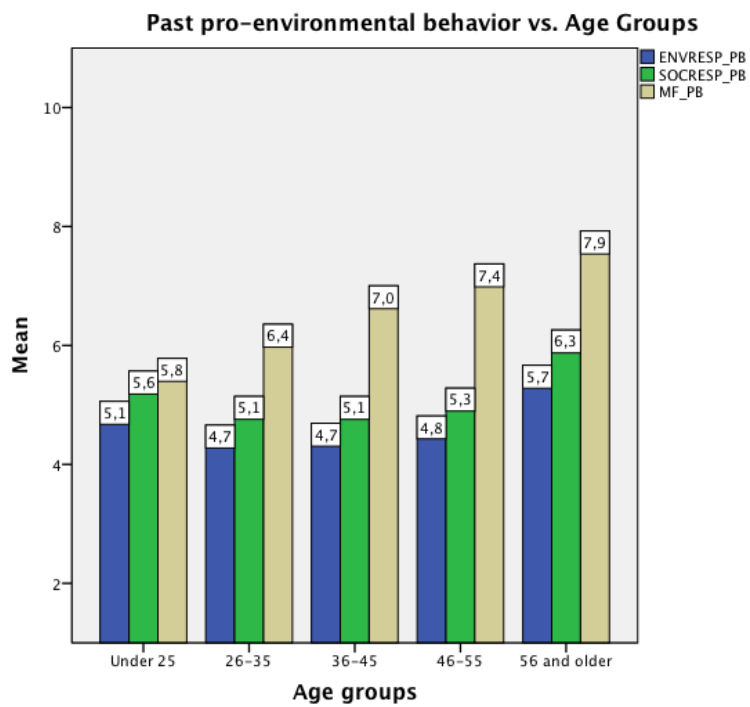
C. Self-identity vs. Age groups

D. Perceived behavioral control vs. Age groups