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Green Demarketing Taking Off

A new environmental CSR approach for airlines

Azucena Blanco Sánchez

Supervisor: Sheila Cannon

Trinity Business School

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Student declaration

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Student Name: Azucena Blanco Sánchez

Student Signature:

Date: 12TH July 2019

Abstract

The current growth in climate crisis awareness is forcing industries to shift and adapt their business models to a more sustainable one that satisfies customers' needs. The airline industry, being one of the industries that contributes to high levels of CO₂, has recently received a large amount of criticism. This dissertation attempts to understand customers' behaviour towards environmental CSR (Corporate Social Responsibility) practices in the airline industry that might affect their purchase behaviour. At the same time, this dissertation strives to provide suitable marketing implications for the airline industry. The data collected from the structured survey is used to find out new marketing practices for the airline industry and to identify segments of the population to whom airlines should engage by using the environmental marketing approach that this study proposes. The most relevant finding is the discovery that demarketing practices might be generally accepted by passengers. The findings contribute to the existing knowledge by covering the gaps in understanding customer behaviour and purchase intention (regarding airline green marketing) and about green demarketing practices in the airline industry. Finally, the discussion of the findings suggests future lines of research regarding profits and ethics in the adoption of demarketing.

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1. Introduction

Currently, more than 2% of global CO₂ emissions come from the airline industry (European Commission, n.d.a) and the forecast indicates that the number of trips by airplane will increase (Statista, n.d.). The increase in the number of passengers is directly linked with the drastic fall in the price of the tickets (Bisignani, 2011). Considering these facts and the current climate crisis, actions from the airline industry are expected. The International Air Transport Association (IATA) identifies a need to lessen CO₂ emissions from air transport and has set some targets to achieve the goal (IATA, n.d.). Meanwhile, a group of environmental activists (mainly young) that encourages others not to travel by air has recently arisen. They have a firm purpose to reduce the number of flights in order to reduce CO₂ emissions (Broom, 2019). This popular movement started in Northern Europe and is rapidly spreading in the rest of the continent.

This dissertation aims to understand the consumer response towards airline environmental initiatives. This study also intends to discover successful marketing techniques for the airline industry related to environmental activities. To do this, the study includes one research question and two research objectives.

Research question:

How can airlines use environmental CSR to impact purchasing behaviour of airline tickets?

Research objectives:

- 1. Uncover techniques that airlines can use to influence customer choice.*
- 2. To identify which segments of the population can offer airlines the highest potential for profitability from environmental CSR initiatives.*

Regarding the existing knowledge on this topic, there are various researchers that have studied the impact of environmental practices on customer loyalty, brand trust, reputation and customer satisfaction (i.e.: Mayer, Ryley & Gillingwater, 2012). The

research of CSR in the airline industry is limited and does not analyse the consumer purchase intention towards environmental CSR (i.e.: Hagmann, Semeijn, & Vellenga, 2015). To date, there is a lack of research on environmental CSR regarding airlines and there is no study yet about how airline customers react to these initiatives. Hence, the present study aims to contribute to the literature on overcoming the two main gaps that have been identified. The first one, regarding customer behaviour and purchase intention towards green marketing in the airline industry; and, the second one about green demarketing techniques in the airline industry. Green demarketing is the practice of encouraging consumers to reduce their consumption for the benefit of the environment.

To achieve the objectives of the study and help address the existing gaps in the literature, quantitative methods are applied. A survey was distributed among general users of airlines in different regions of the world and the results of the analysis offer both theoretical and managerial implications. Airlines are already involved in a few environmental practices, such as the carbon offset programmes. However, since most of those practices result in greenwashing actions (i.e.: they do not actually address the massive carbon footprint of commercial aviation industry), the findings of the analysis of this study suggest a new marketing approach: green demarketing.

There are other industries such as the fashion industry that is already engaging in green demarketing practices. For example, the clothing company Patagonia encourages its customers to reduce their consumption and to consume responsibly. However, at present, there are no airlines engaging in these types of practices but, considering the growing awareness of climate crisis and the existing examples in other areas, it is likely that airlines will consider this approach. This study also acknowledges the challenges in the adoption of demarketing practices and suggests a future line of study about the ethics of airlines in the adoption of demarketing practices.

In general, this topic is very progressive, and the findings of this study contribute to academia and to the airline industry by providing a novel approach. On the one hand,

this study will help to address the gaps in the literature mentioned above. On the other hand, the study will help marketers in the airline industry to address environmental issues in a new way.

This dissertation is divided into four chapters. First, the literature review provides an examination and evaluation of the studies on environmental activities carried out by companies and their effects on customers and on the company identifying six hypotheses. The hypotheses run through the subsequent chapters. Second, the methodology presents the research question and the research objectives of the study and an explanation about how the data has been collected and the methods used. The methodology explains the quantitative methods used to get from the data to the analysis. Thereafter, the findings and analysis chapter first displays the data sample and then it presents the results obtained from the data collected through a thorough analysis. Finally, in the discussion chapter, the most relevant findings are discussed, and this section proposes future lines of research studies and acknowledges the limitations of the present study.

2. Literature Review

This chapter provides a review of the studies on environmental activities carried out by companies and their effects on customers and on the company. This chapter is divided into four sections. First, there is an introduction to the CSR concept that provides some insights on understanding its effect on customers. The second section presents green marketing and green demarketing techniques and discusses how companies can strategically use them to influence customer behaviour. The third section introduces the concept of greenwashing and its backfire effect on the company. Finally, the last section of this chapter summarises the few studies that analyse consumers' perception of environmental initiatives in the airline industry. Throughout this chapter, the literature is connected to the research question and research objectives of this study. To do so, six hypotheses are developed.

Most of the content analysed for the elaboration of this chapter is empirical studies. It includes fifty academic journals and other non-academic journals to provide explanations of some concepts that are not presented in the literature.

2.1. CSR

Despite the long history of CSR, there is no extensive literature on it. There are three main areas of research within the concept that are discussed later in this chapter. The three most popular topics found in CSR literature are brand reputation, competitive advantage and customer satisfaction. There is a general idea in the existing studies that identify a positive correlation between CSR and competitive advantage, brand reputation and customer satisfaction. For instance, Saeidi et al (2015) find a positive correlation between the implementation of CSR and these three aspects and Aguinis & Glavas (2012), find that companies that engage in CSR are likely to improve their reputation and increase customer loyalty.

CSR is an old concept with new relevance. It refers to how companies integrate social and environmental concerns to their business operations (United Nations Industrial

Development Organization, n.d.). Its history is linked to the impact of business in society (Moura-Leite & Padgett, 2011). Although, after the industrial revolution some businesses started with some philanthropic acts, the concept of CSR, as we know it today, emerged in the mid-nineteenth century (Carrol, 2008). In that period, companies showed their responsibility to society through charitable donations (Moura-Leite & Padgett, 2011). The 1960s was a decade of social changes and, CSR was seen as a tool for those changes (Carrol, 2008; Moura-Leite & Padgett, 2011). In the 1990s, CSR became extensively recognised and, since the 2000s CSR has become an important part of the business strategy (Moura-Leite & Padgett, 2011).

If there is something that has not changed in the CSR history, it is the company's motivations to do it (Carrol, 2008). Since "CSR has historically been financially beneficial to brands" (Armstrong Soule & Reich, 2015) it is uncertain if companies do it to gain monetary benefits or for ethical reasons. CSR can bring different benefits to the company and "it can be more than a cost, a limitation, or a charitable action, it can be a source of opportunity, innovation, and competitive advantage" (Porter & Kramer, 2006: 80).

According to Prasad & Holzinger's (2013) critical analysis of marketing CSR, license to operate and brand reputation are the main reasons why companies include CSR as part of their business models. Apart from these two reasons, Porter & Kramer (2006) argue that businesses also do it for sustainability and moral obligations, and they concluded that companies should carefully choose the CSR area they want to work in (this decision will depend on the industry). The idea here is that companies make a real contribution to one of the areas associated with their core operations instead of just making weak contributions to all the areas of CSR. Considering that in 2017, the airline industry produced around 859 million tonnes of CO₂ (IATA, 2018), this suggests that airlines should focus on the environmental area of social responsibility.

Cowper-Smith & de Grosbois (2011) analyse airlines' CSR public online reports and identify that most of the airlines focus on reporting environmental activities. In their analysis of more than 40 airlines, they identify that the 14 that had annual CSR reports

focus more on environmental issues than on any other area of CSR. Within the environmental area, they identify seven categories: emissions, water, energy, waste, biodiversity, noise and other. Of the seven, emissions, is the one that stands out.

2.1.1. Brand Reputation

Airlines can gain competitive advantage when they display an environmental image (Mayer, Ryley & Gillingwater, 2012) and therefore, airlines might benefit from their green brand perception (Ibid.). Moreover, the airline's image is not only based on their business models but also on their marketing strategies (Mayer, Ryley & Gillingwater, 2012). Van Staden & Hooks' (2007) findings suggest that the disclosures of environmental reports (of high quality and large extent) have a positive effect on customers' brand perception. However, Hagmann, Semeijn, & Vellenga (2015) argue that airlines cannot continue including just their CO2 offsetting programs in their reports to improve their green image and claim the need for further environmental actions from the airline industry. This declaration might open the door to new marketing strategies such as green demarketing.

2.1.2. Customer satisfaction

Academia has mostly studied the relationship between CSR initiatives and customer satisfaction. Su, Pan, & Chen (2017) find in their study that CSR in the hotel industry has a positive effect on customer satisfaction because customers want to associate themselves with a reputable brand and display that positive image to others, while increasing brand loyalty and word of mouth recommendations. This is similar to the findings of Walsh & Bartikowski's (2013) study (among the United States and Germany) that demonstrates CSR positively affects customer satisfaction in terms of loyalty and promotion through word of mouth.

Generally, customers' attitudes towards a company's CSR practices are more positive when the company demonstrate a proactive contribution and when the CSR aligns its scope of operations (Yuen, Thai, & Wong, 2018: 276).

Finally, Su, Pan & Chen (2017) stress the importance of CSR in the hospitality industry. In their study (based on the answers from more than 400 hotel guests) they find that CSR positively impacts the company reputation and consumer satisfaction. Su, Pan & Chen (2017) conclude that companies can benefit from their CSR initiatives because their results suggest they are important drivers of customer satisfaction.

2.1.3. Competitive advantage

Regarding the competitive advantage, Porter & Kramer (2006) state that “CSR will become increasingly important to competitive success”. Hagmann, Semeijn, & Vellenga (2015), based on their study, conclude that airlines should improve their environmental messages to gain a competitive advantage. Su, Pan and Chen (2017) argue that the use of CSR to create customer value is useless if the company does not communicate what they are doing to their customers. CSR can become an opportunity for companies to attract environmentally conscious air travellers through their communication messages (Mayer, Ryley & Gillingwater, 2012) because despite the consumers awareness of the damages airplanes cause to the environment, they are not giving up the airplane trips (Ibid.). In addition, consumers still buy products even though they know some of them could damage themselves or their families (Miller, 2001).

Another interesting finding is that eco-friendly products are usually associated with higher prices (Wang, Krishna & McFerran, 2017). In the study carried out by Hagmann, Semeijn & Vellenga (2015), the airline Lufthansa is perceived as the most environmentally friendly airline by customers and Ryanair as the least environmentally friendly airline. The former usually offers high prices while the latter offers the lowest prices. However, a recent report published by the European Federation for Transport and Environment reveals that despite Ryanair being the biggest airline polluter, other airlines such as Lufthansa are growing faster in terms of pollution (Transport & Environment, 2019). This is similar to Mayer, Ryley & Gillingwater's (2015) results. In their study, customers perceived the airlines that made a little contribution to the environment to be more environmentally friendly. Therefore, the following hypothesis is presented:

H1: Price is a significant factor to perceive an airline as eco-friendly.

Sub-hypothesis 1 (a): passengers perceive that when they pay higher prices, the airline is contributing more towards environmental initiatives.

2.2. Green Marketing & Demarketing

In this area, scholars describe green marketing as a tool for companies to satisfy customers and benefit themselves (i.e.: Ottman, Stafford & Hartman, 2006). Although they mention companies must also do it for the benefit of the environment, there is an especial focus on satisfying the customer.

Marketing is often accused of damaging the environment because it influences people to consume. For this reason, some authors propose the use of demarketing techniques instead of green marketing and argue that these techniques will bring benefits to the company as well (i.e.: Reich and Soule, 2016).

2.2.1. Green Marketing

Green marketing refers to “the integration of environmental sustainability into marketing” (Dangelico & Vocalelli, 2017: 1264). Green marketing has become an important concept in marketing (Chen, 2010) that must be used to improve environmental quality and customer satisfaction (Ottman, Stafford & Hartman, 2006).

When companies adopt green behaviour, they should be able to transmit credible and functional benefits to their customers. Otherwise, companies may fall into the pitfall of “green marketing myopia” (Ottman, Stafford & Hartman, 2006). This is when companies focus on promoting “green products” but do not consider other consumer needs. The green aspect of a product or service is not the customer’s only concern. Convenience is also a valuable aspect for customers.

2.2.1.1. *Eco-labels*

Eco-label is a voluntary labelling system recognised worldwide that rewards products and services that are environmentally superior compared to other products or services and meet high environmental standards (European Commission, n.d.b.). There are three different categories of eco-labels classified by the International Organization for Standardization (ISO) (United Nations Environment Programme, n.d.).

Eco-labels are considered part of the green marketing strategies. Some authors agree that companies should use eco-labels as part of their green marketing strategies (i.e.: Baumeister & Onkila, 2017). The general idea defended in the existing literature is that eco-labels allow customers to have detailed information about the product or service and consequently, customers can make a better comparison before purchasing (i.e.: Kotler, 2011). In general, authors agree that this in turn will increase brand credibility.

Kotler (2011) suggests companies should present different prices for their products according to the product eco-friendliness and states that green consumers may be willing to pay more. That means the most significant difference in the price would depend on the eco-friendliness of the product. Baumeister & Onkila (2017), propose the use of eco-labels for the airline industry and identify five elements to develop them: credibility, comparability, clarity, transparency and participation. However, Baumeister & Onkila, do not analyse the influence of the eco-label on the air traveller's booking decisions. Therefore, the following hypothesis is presented:

H2: eco-labels influence booking purchase decisions.

2.2.2. *Green Demarketing*

Generally, marketing is seen as a nudge to increase consumerism and, advertising a specific product is perceived solely as a push to consume (Reich & Soule, 2016). In addition, marketing has traditionally been blamed for damaging the environment (Peattie & Peattie 2009). Thus, green demarketing is an alternative to traditional marketing to overcome this issue.

Even though demarketing promotes a reduction in consumerism behaviour, it does not necessarily mean that there are environmental motivations from the company side to decrease consumption. Demarketing is the practice of discouraging customers to buy (Kotler & Levy, 1971). Kotler & Levy (1971) argue that companies should use demarketing strategies when there is an excess in demand. Kotler and Levy (1971), also acknowledge the risk of over-reducing the demand when utilising demarketing practices. The difference between demarketing and green demarketing is that green demarketing encourages consumers to reduce consumption for the benefit of the environment, and demarketing strategies can have other motivations to encourage customers to consume less.

Demarketing can be challenging for companies as it promotes anti-consumption and, as previously acknowledged, marketing is associated with the idea of encouraging consumption. To overcome Kotler and Levy's (1971) identified risk of over-reducing demand for companies promoting anti-consumption behaviour, Peattie & Peattie (2009) suggest companies present demarketing in an attractive way for both customers and stakeholders.

Unlike green marketing, green demarketing does not only appeal to green consumers (Reich & Soule, 2016). Therefore, since green demarketing appeals to the general population, it is more powerful than traditional green marketing (Reich & Soule, 2016). In addition, based on the results of their studies, Armstrong Soule & Reich (2015), conclude that green demarketing strategies have a positive effect on companies, customers and society, especially when the brand has a positive environmental reputation. Reich & Soule (2016) find in their study that green marketing is more beneficial when advertising products. Whereas, green demarketing is slightly more favourable when advertising brands (Reich & Soule, 2016). However, Reich & Soule (2016) find that consumers' reactions may differ because green demarketing is relatively new and, its messages encourage something relatively new (to reduce consumption).

Although some authors analyse the use of green marketing and see clear benefits for the customers and the company (as argued above), it seems that green demarketing

techniques are an essential part of CSR. Reich & Soule (2016) see a clear connection between green demarketing and CSR and find in their study that (under the right conditions) green demarketing does more for the sake of the environment than traditional green marketing, and it allows the company to be profitable. An example of a company which is already gaining profits from applying green demarketing tools is Patagonia. Patagonia launched a full-page ad in The New York Times, with the headline 'Don't Buy This Jacket' in the year 2011. With this ad, the company encouraged the customers to repair and reuse their clothes as much as possible. Surprisingly, after this anti-consumerism campaign, Patagonia's sales increased by about 30% in the following year (Beer, 2018: 36). Reich & Soule (2016) conclude that investing in brand green demarketing may be beneficial to communicate the general green demarketing strategies and consequently, this will bring financial benefits. Ramirez & Tajdini (2016) find that demarketing campaigns are positively related to customers' brand perceptions and, that when customers are aware of the company's demarketing strategies, they tend to positively change their behaviour. These findings lead to the following hypothesis:

H3: passengers will be willing to choose an airline that uses demarketing strategies.

2.3. Greenwashing

Greenwashing refers to a deceptive use of green marketing where the company appears to be environmentally friendly but instead, they are severely harming the environment.

Greenwashing has become worldwide popular among many companies (Delmas & Burbano, 2011) as a result of companies approaching marketing and CSR in a superficial way. However, greenwashing can create a boomerang effect on the companies in the long term (Dangelico & Vocalelli, 2017). Thus, the following hypothesis is proposed:

H4: when air travellers perceive greenwashing, they are less likely to purchase from the airline.

Customer's scepticism can be expected when companies introduce green initiatives that also reduce costs to the company (Wang, Krishna & McFerran, 2017). Moreover, some initiatives ask customers to make an effort (i.e. pay to offset CO2 emissions) and, if the customer does not see the company making efforts as well, this can create a backfire effect on the company (Wang, Krishna & McFerran, 2017). These arguments drive to the following hypothesis:

H5: air travellers perceive that airlines adopt environmental CSR initiatives for their own interests rather than for the sake of the environment.

Schmuck, Matthes & Naderer (2018) test the reactions of customers to the greenwashing advertisements among the US and German population. By doing so, Schmuck, Matthes & Naderer (2018) find that customers can identify false environmentally friendly advertisements and, this will affect customers' perceptions towards the brand. Furthermore, greenwashing does not only impact customer's perceptions but firm investors (Delmas & Burbano, 2011; Du, 2014). Communication and evidence appear to be two of the most effective tools to avoid greenwashing (Mayer, Ryley & Gillingwater, 2012). Brands must clearly communicate what they are doing and how they are participating in the environmental cause. Customers need transparent information about the environmental CSR initiatives and brands should also transmit the benefits of purchasing their products or using their services to their customers as this can contribute to the increase in customer loyalty (Lin, Lobo & Leckie, 2017).

Consumers can hardly ever distinguish whether brands are taking part in green initiatives because they really care about the environment or if those initiatives are just greenwashing (Cronin et al 2011). Ottman, Stafford & Hartman (2006), find that since customers do not always have expert knowledge, some scepticism can appear. Therefore, companies must be honest in their communication of green messages (Ottman, Stafford & Hartman, 2006). To implement green initiatives, brands must know which would be most effective and when and, how to introduce them. Sometimes, environmentally friendly programs (if they are not well planned and executed) can produce a negative brand reputation (Wang, Krishna & McFerran, 2017).

Another study that demonstrates the need for clear communication is the one carried out by Armstrong Soule & Reich. Armstrong Soule & Reich (2015: 1412-1420) show that customers associate more altruism with “brands with an outstanding environmental reputation” and “higher manipulative drives to poor-reputation brands”. However, sometimes, the communication of green messages can create a backfire effect on the company (Armstrong Soule & Reich, 2015). The customer’s perception of green demarketing messages is crucial for brands (Armstrong Soule & Reich, 2015). Therefore, brands should be “cautious about how they advertise their products” (Kotler, 2011: 134).

Apart from quality communication, the main proposal found in the literature to overcome the greenwashing problem is the implementation of regulation from both internal and external bodies. Lyon & Maxwell (2011), find in their research that the implementation of a high-quality environmental management system reduces greenwashing. Laufer (2003), stresses the importance of external audit bodies to avoid greenwashing. Various authors highlight in their studies the lack of regulation and inconsistency.

Cowper-Smith & de Grosbois (2011), identify that most airlines report initiatives such as offsetting CO₂ emissions, but few of them provide results of those initiatives to prove their commitment. In addition, Hagmann, Semeijn, & Vellenga (2015), find that only one third of the surveyed people had heard of CO₂ offsetting programs. Nevertheless, it continues to be one of the most commonly reported initiatives in airline environmental CSR programs. Hagmann, Semeijn, & Vellenga (2015: 44) note “the poor clear information in regard to airline environmental friendliness” and similarly, Porter & Kramer (2006), find that airlines hardly ever report their environmental impact. Cowper-Smith & de Grosbois (2011), accuse airlines of reporting their green goals instead of environmental initiatives. Facing this situation, Cowper-Smith & de Grosbois (2011), state that there is an inconsistency in airline reports and, they claim a more standardised process to compare environmental airlines’ performances is required. For instance, Cowper-Smith & de Grosbois (2011), declare that simple initiatives such as reducing air-conditioning in the airline offices also contribute to reducing energy consumption.

However, in their study, only one airline reported that initiative. One of the arguments that Cowper-Smith & de Grosbois (2011) suggest for this lack of simple initiatives' reports is that probably, airlines may find these initiatives as mandatory and they do not find the need to report them. Nevertheless, Wang, Krishna & McFerran (2017) highlight the importance of communicating all green practices to the customers, even those that could be seen to be quite basic.

The breach between what companies do and what companies report seems to be a trend in the tourism industry. Font et al (2012) also identify a gap (in the hotel industry) between what companies do and what they report. Frankental (2001), concludes that the way a company responds to the critics will determine if their CSR activities are real or just greenwashing.

2.4. The customer and other pressures

Frequently, companies complain of receiving external and internal pressures for either reporting or not reporting their environmental performance. Lyon & Maxwell (2011) argue that despite companies' efforts, they are generally seen as the enemy of the environment by customers and external bodies.

Academics recognise the customer as one of the main pressures for companies which can both influence and make companies change their marketing practices. Nowadays, the customer has tremendous power. The customer has new concerns, and one of their motivations in choosing a brand is the company's level of social engagement (Kotler, 2011). Word of mouth also plays an important role in the current marketplace (Ottman, Stafford & Hartman, 2006; Kotler, 2011). The environmental performance of the companies is also commented on via social media by users. For this reason, companies find the need to display an environmentally friendly image (Wang, Krishna & McFerran, 2017).

Lyon & Maxwell (2011) note that many companies are hesitant to present their environmental programs because of the risk of receiving high criticism from activists

that can hugely harm their businesses. Surprisingly, activists criticise companies that disclose their CSR reports more than those that do not (Lyon & Maxwell, 2011). However, Lyon & Maxwell (2011), find in their analysis that after the activist criticism, the companies attacked significantly reduce their greenwashing activities. On the other hand, some companies prefer not to disclose their CSR reports because their CSRs are very poor (Font et al, 2012).

Apart from customers, stakeholders are also actors that pressure companies and that can influence their environmental performance. Stakeholders appear to be big influencers in companies' marketing decisions because "going green is taking an important place in the boardrooms" (Cronin et al, 2011: 158). The green strategies must meet the stakeholders' needs and wants (Cronin et al, 2011). If large profits are not presented to stakeholders by the managers who are in charge of CSR, stakeholders may not be interested in investing in green marketing (Cronin et al, 2011). "By becoming more aware of the benefits to both the firm and its stakeholders, managers can make better decisions about CSR activities" (Burke & Logsdon, 1996: 499). Testa, Boiral & Iraldo's (2018) findings show that in general, stakeholders' pressures positively influence the implementation and measurement of environmental practices in the company. However, the customer's needs and wants cannot be forgotten since this would lead to "marketing myopia". This concept is described by Levitt (1960), as when the companies focus more on their product rather than on their customer needs and wants.

CSR is receiving special attention in the tourism sector (Font et al, 2012). Consequently, pressures in tourism companies (including the airline industry) are increasing (Font et al, 2012). Even though the airline industry provides social and economic benefits, it also contributes negatively to the environment and, this pushes the industry into the spotlight (Cowper-Smith & de Grosbois, 2011). The environmental pressure is real and, thus companies should change their business models to satisfy the current customer's needs (Chen, 2010). Kotler (2011) states that companies are obliged to address the global environmental problem and suggests companies must approach the issue in new ways.

Air traveller perceptions towards airlines' green initiatives have received limited attention in academia and, only a few studies have been published. In regard to the analysis of how those initiatives impact on customer purchase intentions, there are even fewer studies. Hagmann, Semeijn, & Vellenga (2015) analyse passenger perceptions and their choice of airline based on their green image. The other study that analyses the customer behaviour towards airlines green image was carried out by Mayer, Ryley & Gillingwater (2012) where they analyse the relationship between airlines green image and passengers' perceptions. Later, Mayer, Ryley & Gillingwater used the same set of data to analyse the customers' perceptions versus the airlines' actual environmental performances. These studies are carried out by surveying air travellers in Dusseldorf and Liverpool. Hence, there is room to replicate part of the study and thus compare results from different geographical areas. For instance, Hagmann, Semeijn, & Vellenga (2015) find that the environmental friendliness of the airline does influence customers' airline choice during the booking process. Thus, the following hypothesis is formulated:

H6: customers are easier to influence during the booking process.

2.5. Summary

The need for companies to take a real environmental approach to their operations is receiving increasing attention. Until now, studies of the airline industry are limited and allow room for future studies such as this present study. The six hypotheses proposed in this chapter, will help to answer the research question *"how can airlines use environmental CSR to impact purchasing behaviour of airline tickets?"* and reach the research objectives (presented in the next chapter).

The literature has pointed out that environmental CSR is a broad area to study where customers play an important role. CSR is positively related to brand reputation, competitive advantage and customer satisfaction. Some of the studies presented above that support this argument also find that customers frequently associate eco-friendly products with higher prices. Hence, this suggests H1 and sub-hypothesis H1(a):

H1: Price is a significant factor to perceive an airline as eco-friendly.

Sub-hypothesis 1 (a): passengers perceive that when they pay higher prices, the airline is contributing towards environmental initiatives.

Green marketing and green demarketing studies show different company approaches and suggest that eco-labels might help customers to make purchase decisions. With eco-labels, customers can compare the eco-friendliness of the product and make their decision based on this. This leads to H2:

H2: eco-labels influence booking purchase decisions.

Up to now, there is a lack of literature about green demarketing techniques in the airline industry and their customers' reactions to these initiatives. Other industries (i.e.: fashion industry) prove that green demarketing is an alternative to traditional green marketing. This leads to H3:

H3: passengers will be willing to choose an airline that uses demarketing strategies.

Some studies demonstrate that some companies engage in greenwashing, as a result of using CSR and marketing in a superficial way and, this can negatively impact the company. This leads to H4 and H5:

H4: when air travellers perceive greenwashing, they are less likely to purchase from the airline.

H5: air travellers perceive that airlines adopt environmental CSR initiatives for their own interests rather than for the sake of the environment.

Finally, the positive correlation between an airline's environmental friendliness shown during the booking process and customer choice leads to the last hypothesis, H6:

H6: customers are easier to influence during the booking process.

3. Methodology

This chapter details the methods used to carry out the present study. This chapter is divided into four sections. The first section outlines the research question and the research objectives of this study. The following section conveys the research philosophy and discusses why this study follows the positivism philosophy. The third section describes the research methods and explains which methods have been used and why. Finally, the fourth section outlines the limitations of using these research methods.

3.1. Research Question

The goal of the dissertation is to understand the consumer response towards airline environmental initiatives. This study also aims to uncover successful marketing techniques for the airline industry related to environmental activities. As previously stated, there are two gaps in the literature. The first one, regarding customer behaviour and purchase intention towards green marketing in the airline industry; and, the second one about green demarketing techniques in the airline industry. To overcome these gaps, the study counts with one research question and two research objectives.

Research question:

How can airlines use environmental CSR to impact purchasing behaviour of airline tickets?

Research objectives:

- 1. Uncover techniques that airlines can use to influence customer choice.*
- 2. To identify which segments of the population can offer airlines the highest potential for profitability from environmental CSR initiatives.*

3.2. Research Philosophy

Within the four main research philosophies (pragmatism, positivism, realism and interpretivism) (Saunders, Lewis & Thornhill, 2016: 113), this study will follow the positivism research philosophy. Frequently, positivism uses existing theory to develop hypotheses (Saunders, Lewis & Thornhill, 2016: 113). Then, the hypotheses are tested

during the research process and the results contribute to testing and extending existing theory, and sometimes to creating new theory. This present study includes six hypotheses which were developed from analysing the existing literature. Another main idea of the positivism philosophy is that the conclusions of the research should be based on measurable objective methods rather than on subjective intuition (Easterby-Smith, Thorpe, & Jackson, 2008: 25). Then, the hypotheses formulated in this study are tested through an objective methodology.

3.3. Research Methods

This study follows a deductive research approach (Woiceshyn & Daellenbach, 2018) starting from a general theoretical base from which six hypotheses were previously formulated. These hypotheses will be tested through quantitative methods and, the data collected from the survey will be used to develop a new theory (Saunders, Lewis & Thornhill, 2016: 124).

To answer the research question, quantitative methods were used because the test was based on existing theory (Mack et al, 2005). Quantitative methods explore an area of study by using numerical data (Ragab & Arisha, 2017).

Qualtrics was the chosen software to design the survey. The population surveyed were general users of airlines over 18 years old and from any country. The survey was shared via different communication platforms: social media (LinkedIn, Facebook, Instagram and Twitter), WhatsApp and in the online platform Survey Circle.

The hypotheses formulated throughout the literature review were used to design the survey. Before distributing the final survey, a pilot survey was tested with a small group of six respondents in May 2019. Testing the survey before the final distribution is strongly recommended (Ragab & Arisha, 2017). The test resulted in minor changes to the final survey. The final survey contained 18 questions (See Appendix A) and the average duration was about 6 to 8 minutes. The data was collected between the 31st May 2019 and the 17th June 2019. The survey was divided into two sections. The first

part contained nine questions that were intended to know the general aspects of the customer to group the sample population into similar clusters and hence, answer the second research objective of this study. The second part of the survey was intended to understand customer's behaviours towards green marketing, green-demarketing and greenwashing. This second part of questions includes multiple choice with single answer option and questions where the surveyed person should rate on a scale from one to five his or her agreement or disagreement with the cases presented. The second part of the survey will help to answer the first research objective of this study.

The questions of the second part of the survey were designed considering real examples of airlines but without mentioning the name of the airline to avoid biased responses. Prices shown in Q13 were based on the example Dublin to New York from 1st October 2019 to 7th October 2019. The research was made on the 26th May 2019 using the metasearch Google flights and the airlines found as a result of this search were Aer Lingus, Delta Airlines and United Airlines (See Appendix B.1). The green messages of Q14 were based on real examples from the airlines Lufthansa, Ryanair and Iberia that are visible on their websites and, the demarketing messages were designed based on a combination of existing demarketing messages from other industries (e.g.: "Don't buy this Jacket") and the propositions from the anti-flying movements to reduce the CO2 emissions from airplanes. Q18 was based on the example of Toronto to Bogotá from the 11th June to the 17th June 2019. In the example, there were two airlines that use the aircrafts that appear in the eco-label pictures: Boeing 767 and Airbus 321. The research was made on 26th May 2019 using the metasearch Google flights and the airlines found as a result of this search were Air Canada and LATAM. (See Appendices B.2 and B.3).

To answer hypothesis 1 there was one multiple choice single answer question in which respondents had to choose which of the three flight prices shown did they consider to be the most environmentally friendly airline. They also had the option to choose an "I don't know" option. To answer sub-hypothesis 1 (a) there was one Likert scale question in which the respondents had to indicate their level of agreement or disagreement with a statement related to the price and eco-friendliness of the airline. To answer hypothesis 2, first participants received a brief information about what an eco-label is and

straightaway there was one question where the respondent had to choose between two flight options based on the provided eco-label description and price. To answer hypothesis 3 there were one Likert single answer question with fictitious demarketing and real no demarketing airline messages in which the respondent had to rate on a scale from one to five the likeliness to choose each airline based on their environmental message. The second question to answer hypothesis 3, presented a scenario to the respondents in which they had to choose one of the three airlines shown based on their slogans (one of the three was a fictitious demarketing slogan) and the price. Hypotheses 4, 5 and 6 aim to understand consumers perceptions and behaviour. Therefore, the three of them were answered using Likert single answer questions. For hypotheses 4 and 5 the questions included two statement each and, three statements for hypothesis 6. See table 1.

Hypotheses	Question number (see survey in Appendix A)
H1: Price is a significant factor to perceive an airline as eco-friendly.	Q13
Sub-hypothesis 1 (a): passengers perceive that when they pay higher prices, the airline is contributing towards environmental initiatives.	Q15
H2: Eco-labels influence booking purchase decisions.	Q19
H3: Passengers will be willing to choose an airline that uses demarketing strategies.	Q14 (2, 5, 6 and 8) and Q17
H4: When air travellers perceive greenwashing, they are less likely to purchase from the airline.	Q15
H5: Air travellers perceive that airlines adopt environmental CSR initiatives for their own interest rather than for the sake of the environment.	Q15
H6: Customers are easier to influence during the booking process.	Q12

Table 1. Hypotheses and survey's questions

3.4. Quantitative methods

Excel, SPSS and Python were the three tools used to perform the analysis. Excel is highly valuable and can significantly save time due to its simplicity for exploratory data analysis when importing data, sorting and applying filters (Palocsay, Markham, & Markham, 2010). In quantitative data analysis, Excel allows for the presenting of statistical data in an attractive and easy to understand format through tables and graphs (Koschat, 2005). Moreover, since Excel is the most commonly used software among practitioners in different business disciplines (Palocsay, Markham, & Markham, 2010), a manageable replication of this model can be highly beneficial for marketers who want to perform a similar analysis.

Excel was used to understand the data and analyse the results of the questions. Pivot tables in Excel were used to answer the hypotheses of this study. For a more accurate quantitative analysis the following tests were performed in SPSS. First, Multiple Linear Regression Analysis was used to examine the relationship between multiple variables. Thereafter, the K-means algorithm was used to classify a relatively homogeneous group of customers. K-means cluster analysis was used because it is one of the most popular algorithms used by practitioners including marketers because of its simplicity and speed (Venkatesan, 2018: 4). Finally, ANOVA test was used to determine group differences and to identify which variables may significantly influence the customer purchase behaviour (George & Mallery, 2016). Regarding Python, the Seaborn library was used to create the Pearson Correlation Matrix as a visual summary of the data.

3.5. Ethics

To guarantee ethical collection of data, the Trinity Business School Ethical Approval Form was completed and all participants in the survey were provided with the required information about the purpose, use, security, voluntarily of participation and manipulation of data to conform to the policies of the Trinity College Dublin School Business Research Ethics Committee. The survey included a note at the beginning of the questionnaire to inform the participants about the purpose of the research, the

voluntary nature of the participation and stressing the security and anonymity of the data collected.

3.6. Limitations

Although this study aims to test the existing theory in a specific industry (the airline industry), it is relevant to note that popular anti-flying movements have recently arisen. For instance, “Flygskam” (a Swedish term which literally means “flight shame”) and Stay Grounded are two movements that have recently arisen, especially in the north of Europe which try to raise awareness within the population in order to make them reduce their number of flights and consequently reduce the CO2 emissions. Therefore, there is also room to explore this area using qualitative research methods. When using mixed methods, qualitative research allows asking the right questions when moving to quantitative research (IATA, 2003). However, when using this methodology in a new polemic topic it is known that interviewing people of the movement could also be a limitation because there is a risk that the answers are biased. For this reason, this research did not use qualitative methods.

On the other hand, according to Remenyi et al (1998:33), the positivism research philosophy upholds the idea that “the researcher is independent of and neither affects nor is affected by the subject of the research”. In this present research, the author has neither interfered nor altered the methods used for the analysis. However, the author here declares an interest in the environment and in the airline industry and aims to achieve positive results in the analysis. To overcome any bias, the survey includes green marketing, green demarketing and neutral marketing messages (that airlines are currently using) in order to test the customer's reactions.

3.7. Summary

The quantitative methods described above will help to answer the research question of this study and its corresponding objectives. Despite some limitations having been acknowledged regarding the possible use of mixed methods, it is considered that due to the existing theories and the goal of the research, this study follows the positivism

research philosophy and, therefore, the methodology used to find out the answer to the research objectives and research question is the most appropriate. The data collected will be analysed in the next section using statistical analysis methods.

4. Findings and Analysis

This chapter describes the results and findings obtained from the analysis of the data collected from the surveys. Throughout this chapter, the findings demonstrate whether the hypotheses previously formulated in this study are supported or rejected and there is also an interpretation of the results. The chapter is divided into eight sections. First, there is an introduction to the data sample. Second, the profile of the respondents is explained through the demographics. The third section answers hypothesis 1 and sub-hypothesis 1 (a) by understanding the customers' perceptions. The fourth section answers hypotheses 2 and 3 by comparing the customer's attitudes towards green marketing and green demarketing. The fifth section answers hypotheses 4 and 5 by analysing the customer's behaviour towards greenwashing. The sixth section answers hypothesis 6 by analysing the customer's behaviour during the booking process. The seventh section identifies relationships between variables and differences among different groups of customers. The last section summarises the findings of the analysis.

4.1. Data sample

The study is comprised of 152 participants. The first step after collecting the data was to identify and delete missing data to guarantee the accuracy of the results of the analysis (Vidgena, Shawb & Grant, 2017). Missing data refers to the values in the responses of the survey that are blank. From the 152 surveys taken, 131 were successfully completed, meaning that 131 people answered the 18 questions and finished the survey. The 21 incomplete surveys were easily identified because Qualtrics provides information on the percentage of survey completion. The 21 surveys that indicated that less than 100% was completed were cleared from the data set in Excel. This type of missing data occurs frequently and it is known as Missing At Random (Kwak & Kim, 2005). Considering that the sample is large enough, the deletion of this missing data will not have a significant impact on the results of the analysis (Kwak & Kim, 2005). The second step for cleaning the data is to change the cells which contain a city name in the question "where are you currently living" to the corresponding country in order to be able to group customers by country easily.

For the regression analysis and clusters, it has been noticed that five surveys were completed in less than 200 seconds (less than 3,3 minutes). Considering that the average time in the response was between 6 to 8 minutes, two Matrices of Pearson Correlations have been compared (see section 7) and it has been decided not to consider those five row for that part of the analysis.

4.2. Demographics

Of the 131 respondents 19 countries were identified, where Ireland and Spain were the top two countries where the respondents currently live. Regarding gender, the number of female respondents is larger than the male respondents. 81 (61.83%) of the respondents were identified as female, 49 (37.40%) as male and one respondent (0.76%) preferred not to reveal his or her gender. The sample covers participants from a wide range of ages from 18 years old to 65 years old or over. It has been identified that the age group ranging from 25 to 31 years old is the largest one with 71 (54.19%) respondents.

Regarding the annual income, up to €24,000 per year is by far the largest answer with 84 (64.12%) respondents. Regarding the studies, 86 (65.64%) of the respondents hold a master's degree and the second largest group hold a bachelor's degree with 47 (35.87%) respondents. Most of the surveyed population is employed with 93 (70.99%) respondents in this category and followed by students with 45 (34.35%) respondents. With regard to the frequency and reasons to travel 74 (56.48%) of the respondents travel between one to four times per year and 58 (44.27%) of the respondents travel between five to eight times per year and their main reason is leisure with 78 (59.54%) respondents and in second place visit friends and relatives with 34 respondents (25.95%).

4.3. Price and environmental image perception

Price and environmental friendliness of the airline are the two factors analyzed in this study to understand consumer's motivations on purchase decisions. 52.67% of the respondents do not associate any of the three prices shown for a flight with the eco-

friendliness of the airline (see figure 1). The results of the other half of respondents that associated the eco-friendliness to one of the three flight prices are very distributed among the three prices.

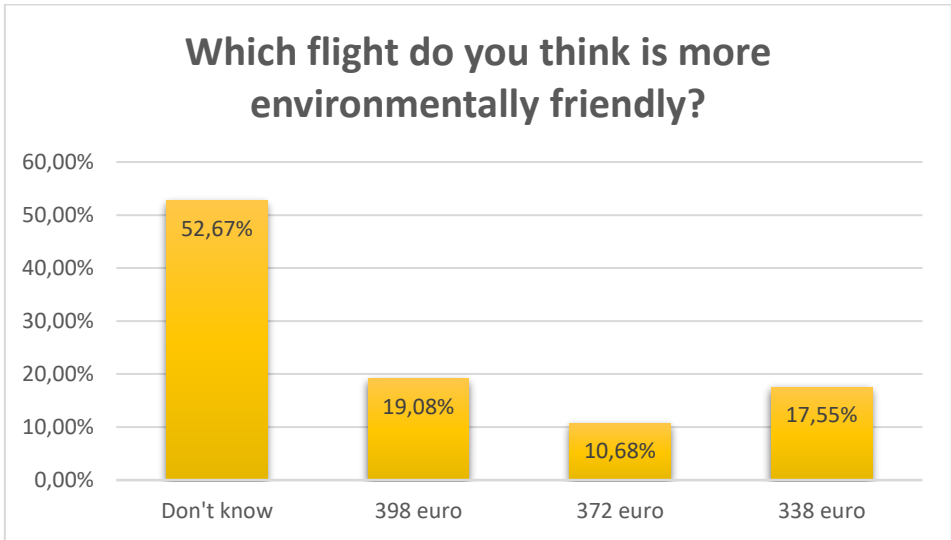


Figure 1. Price and environmental image perception

Regarding the passengers’ perceptions about the relationship between price and eco-friendliness, the results are levelled between those that believe that most expensive airlines do not necessarily invest more in the environment (34.35% disagree) and those that neither agree nor disagree (32.06%) with this believe (see figure 2).

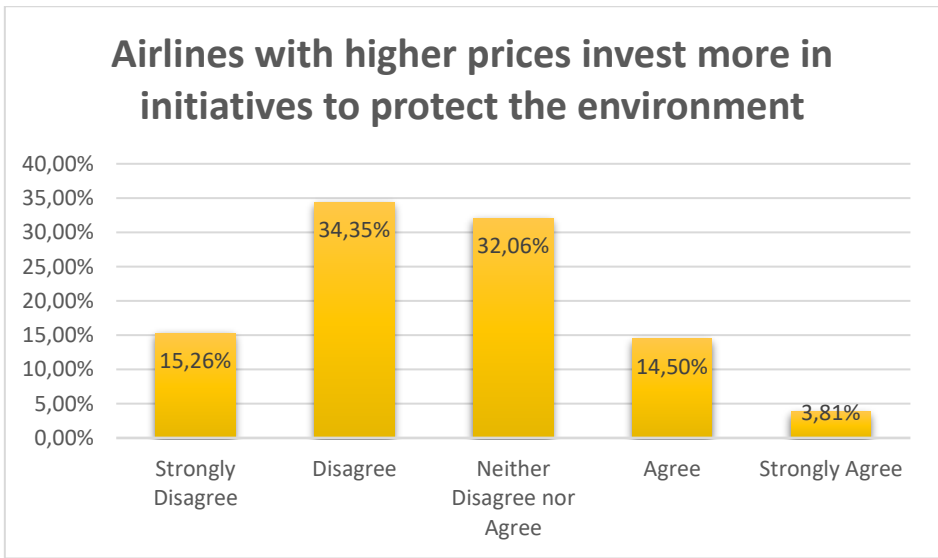


Figure 2. Level of agreement about the relationship between price and airline environmental performance

However, 42.22% of the total respondents who disagree (34,35% or 45 respondents) with the statement of the previous graph would be likely to pay more for their tickets if they know the airline is really contributing to environmental initiatives (see figure 3). The implications of this finding are further discussed in the next chapter.

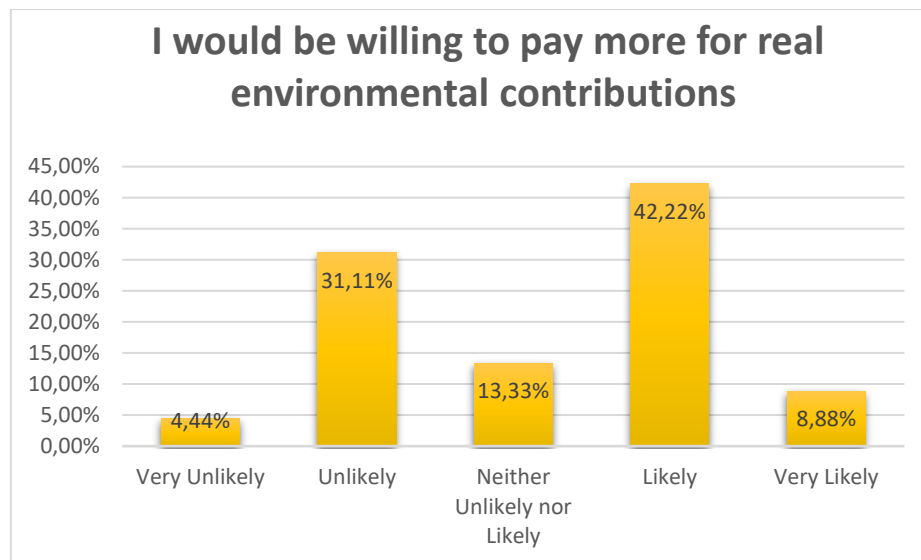


Figure 3. Willingness to pay more for airline's environmental contributions

Therefore, the results of this study shown above demonstrate that, unlike the results found by Hagmann, Semeijn & Vallenga (2015) and Mayer, Ryley & Gillingwater (2015), customers do not consider price as a significant factor to determine the eco-friendliness of the airline. In the next chapter of this dissertation, the reasons for the difference in the results are discussed. Moreover, as seen in figure 2, passengers do not consider that most expensive airlines are the eco-friendliest. Therefore, these results **fail to reject hypothesis 1 and sub-hypothesis 1 (a)**.

As a conclusion of customer's perceptions towards airlines environmentalism, the results in this sample suggest that customers do not consider price to be a significant factor when determining the eco-friendliness of an airline.

4.4. Green marketing vs Green demarketing effects on customers

The eco-labels are used in this section to explain the customer's reactions towards green marketing and the demarketing messages are used to understand the effect of green demarketing on passengers.

In the sample of the present study, when customers have the information about the environmental impact of their flights (presented through eco-labels) and the price, customers prefer the cheapest option even though the difference between the prices is less than €80. This can be seen in figure 4, where 67.93% of the respondents prefer to purchase the economic one, even though it is the one that pollutes more. Customers do not seem to be attracted by this way of receiving information about the environmental impacts of their flights. Differing to what Baumeister & Onkila (2017) suggested, eco-labels do not seem to work in the airline industry. Therefore, **hypothesis 2 is rejected**.

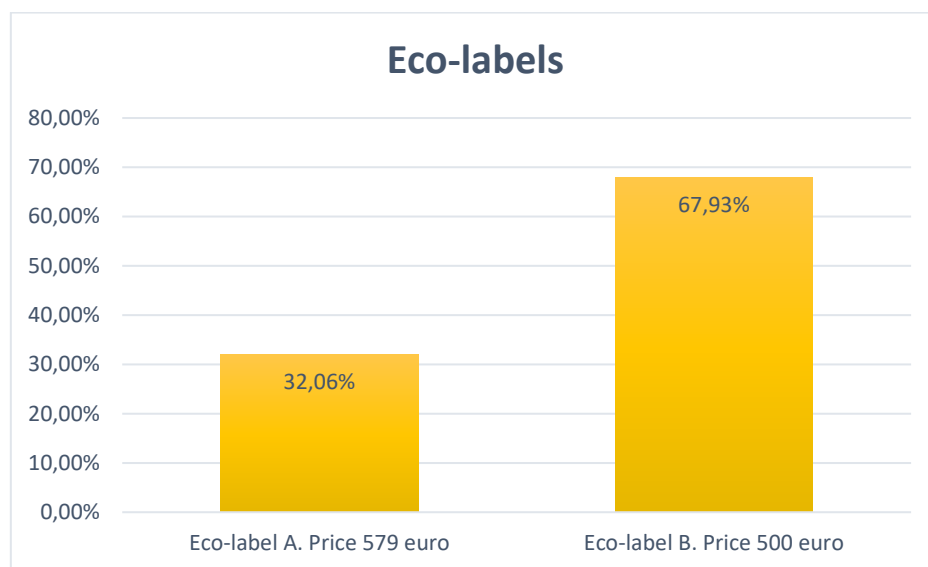


Figure 4. Eco-labels

An interesting related finding is that a large percentage of the respondents who choose the cheapest flight option (which are 67.93% of the population, with a total of 89 respondents) would (21 respondents) or might (39 respondents) still pay to offset their CO2 emissions even though they know the airline still contributes to detrimental CO2 emissions (see figure 5).

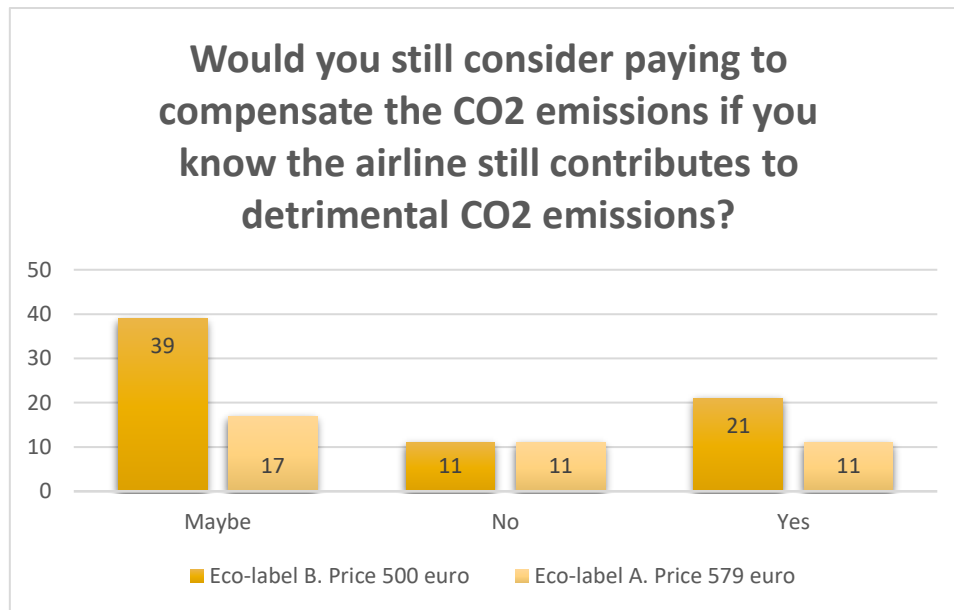


Figure 5. Would you still consider paying to compensate the CO2 emissions if you know the airline still contributes to detrimental CO2 emissions?

Regarding demarketing strategies, from the four demarketing messages shown in the survey, passengers feel especially attracted by the following one: *“increase the use of video-conferencing tools instead of travelling”*. This is the demarketing message that most positively influences customers to choose the airline with 31.29% of the respondents who are likely and 19,08% who are very likely to choose an airline with this message (see figure 6). It is important to note that 12.12% of the passengers who travel for business reasons would be likely or very likely to choose an airline with this message.

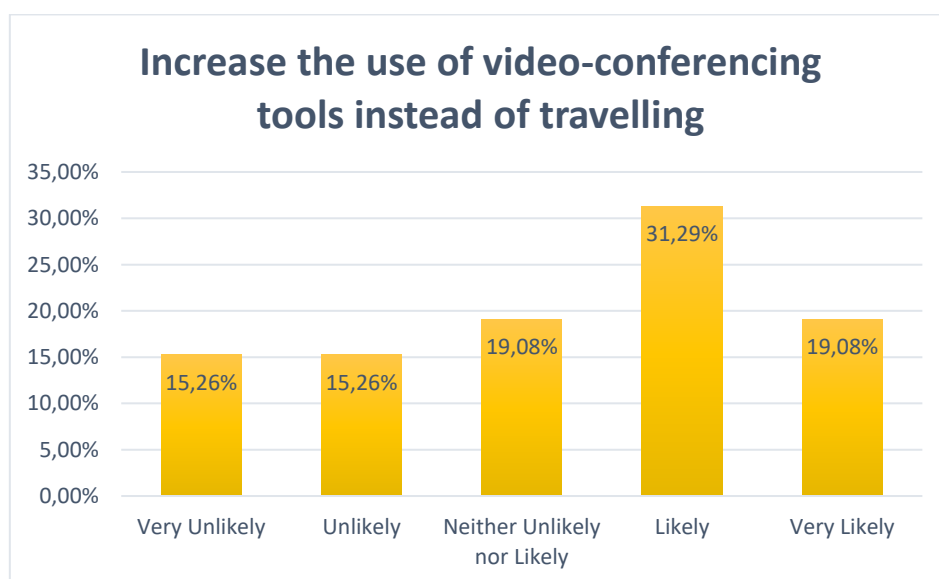


Figure 6. Demarketing message: Increase the use of video-conferencing tools instead of travelling

The message *“avoid flying when possible”* has a generally negative response from customers. 27.48% of the respondents are unlikely and 23.66% very unlikely to choose an airline with this message. However, 19.84% of the population are neither likely nor unlikely to choose an airline with this message. See figure 7.

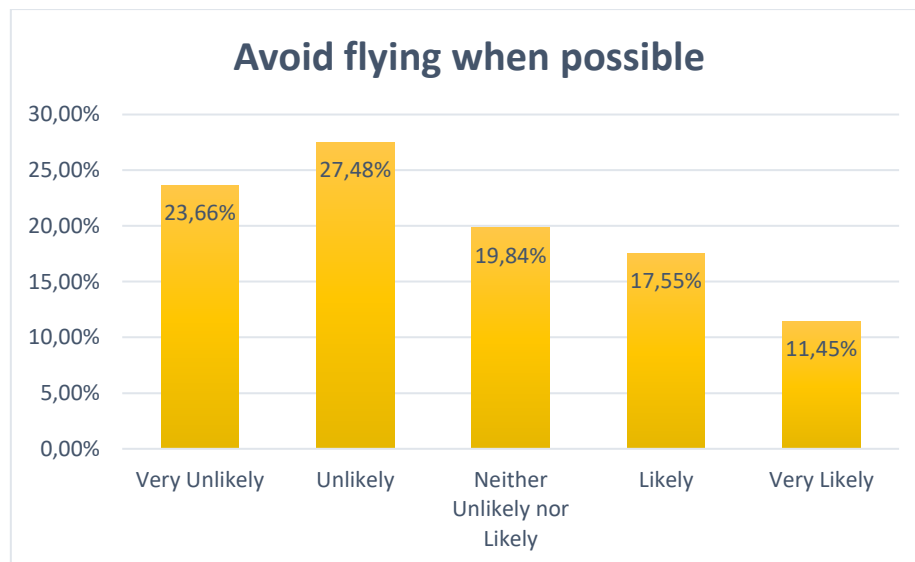


Figure 7: Demarketing message: Avoid flying when possible

The other two messages (*“take fewer and longer vacations to far away destinations”* and *“Fly less frequently and shorter distances”*) have a similar communication goal: to encourage customers not only to reduce their number of flights but to travel to closer destinations. However, there are some different reactions to each of these messages. The same percentage (29%) of respondents who are likely to choose an airline with the message *“take fewer and longer vacations to far away destinations”* will be unlikely to choose an airline with the second message *“Fly less frequently and shorter distances”*. See figures 8 and 9.

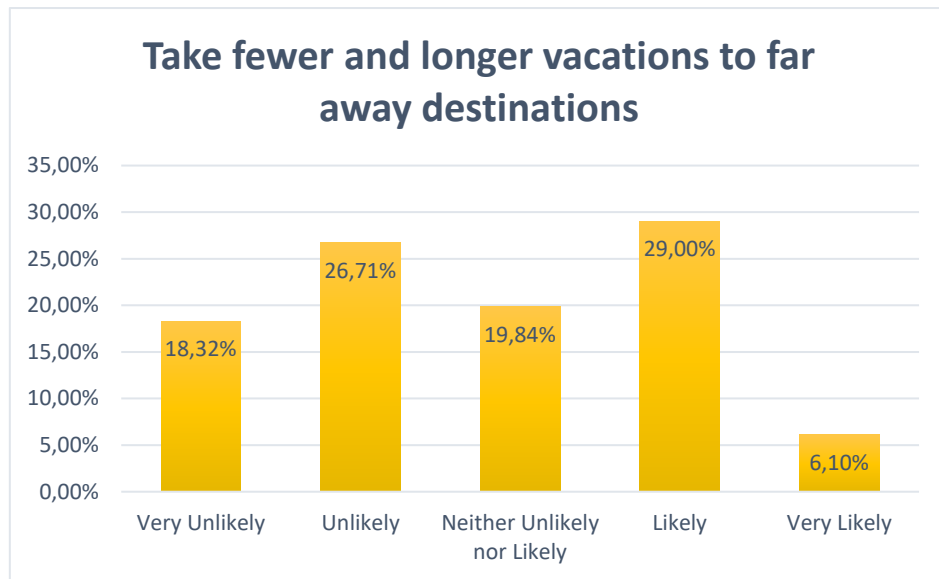


Figure 8: Demarketing message: Take fewer and longer vacations to far away destinations

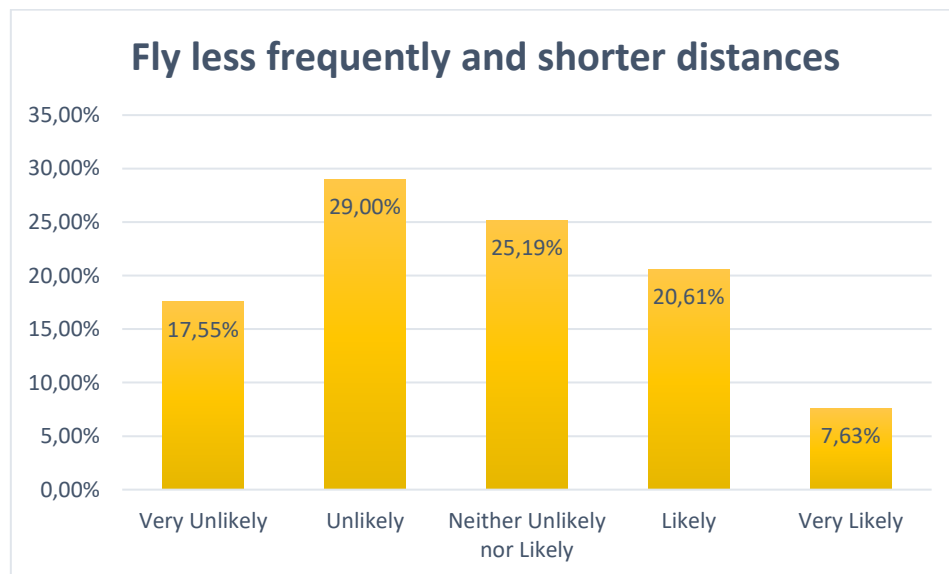


Figure 9: Demarketing message: Fly less frequently and shorter distances

The likeliness and the large percentages of neutral responses towards the demarketing messages **support hypothesis 3**. Further details are analyzed in the last section of this chapter.

Although the results suggest that there is a place for green demarketing in the airline industry, when the demarketing messages are presented together with the price and compared with other non-demarketing messages (which prices are lower), the airline with a demarketing message is the least favorite one (see figure 10). The implications of this finding will be discussed in the next chapter.



Figure 10. Airlines' promotional slogan and prices

4.5. Greenwashing effects on customers

Regarding the effects of greenwashing on customers, this section analyses the questions related to purchasing behaviour. 39.69% (see figure 11) of the respondents are neutral to the statement *"I avoid airlines that display an eco-friendly image even though they are big polluters"* and 37.40% (see figure 12) of the respondents are also neutral to the statement *"I avoid airlines that ask me to compensate my carbon emissions even though they are big polluters"*. These findings suggest that passengers are neither influenced nor careless about what airlines do. However, it is important to stress that after the neutral reaction of participants, the second largest answer is a disagreement with these statements (26.47% and 25.19%). That suggests that customers do not change their purchase intention when greenwashing is acknowledged. In addition, a surprisingly large number of respondents who say they would pay to compensate CO₂ emissions affirm that they would still pay to compensate CO₂ emissions even if they know the airline is a big polluter. Therefore, these findings **fail to reject hypothesis 4**.

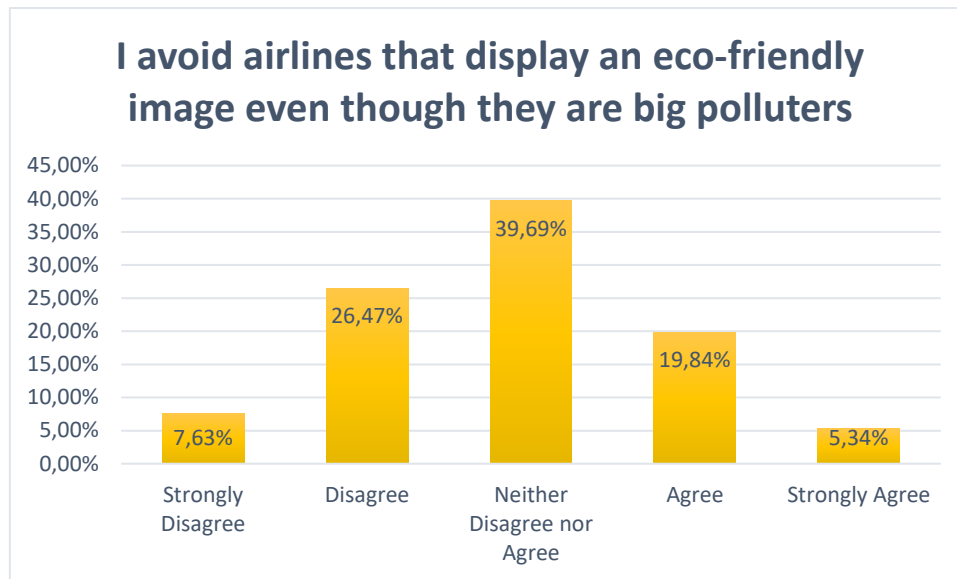


Figure 11. Consumer behaviour towards Greenwashing (I)

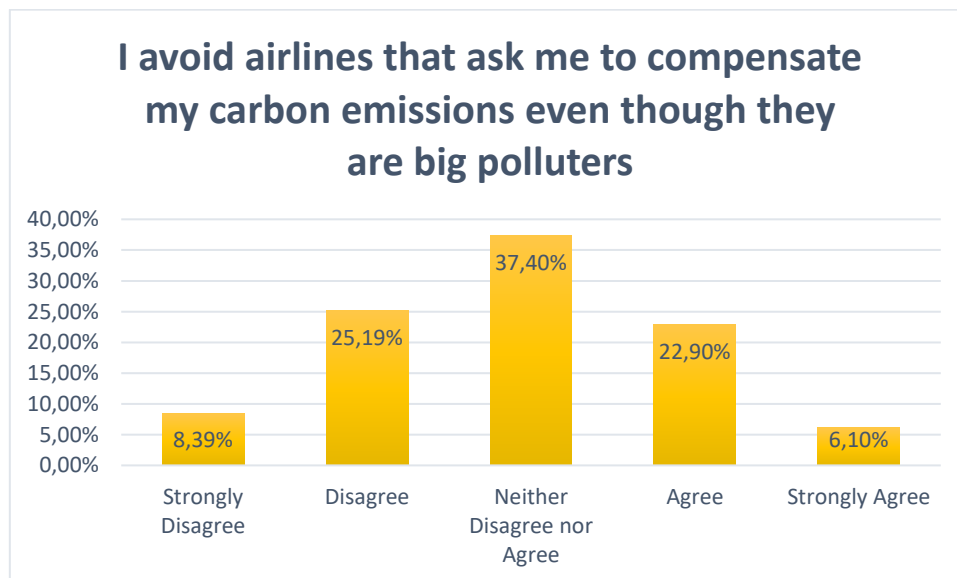


Figure 12. Consumer behaviour towards Greenwashing (II)

Regarding the environmental image perception, 35.87% (see figure 13) agree that airlines get monetary benefits from the CO₂ compensation programs and 51.14% (see figure 14) agree that airlines get other non-monetary benefits from the CO₂ compensation programs. Therefore, these two questions **support hypothesis 5**.

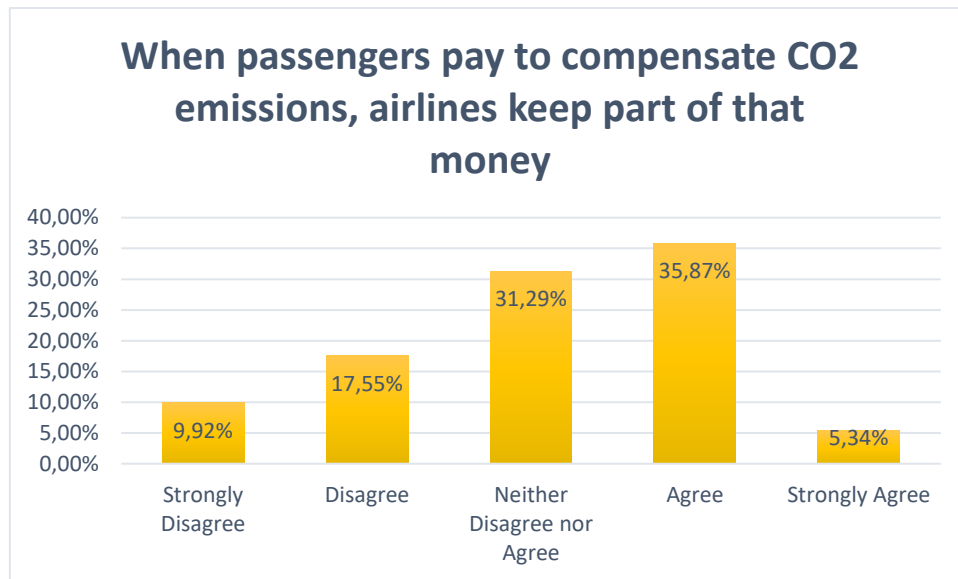


Figure 13. Airline's environmental image perception (I)

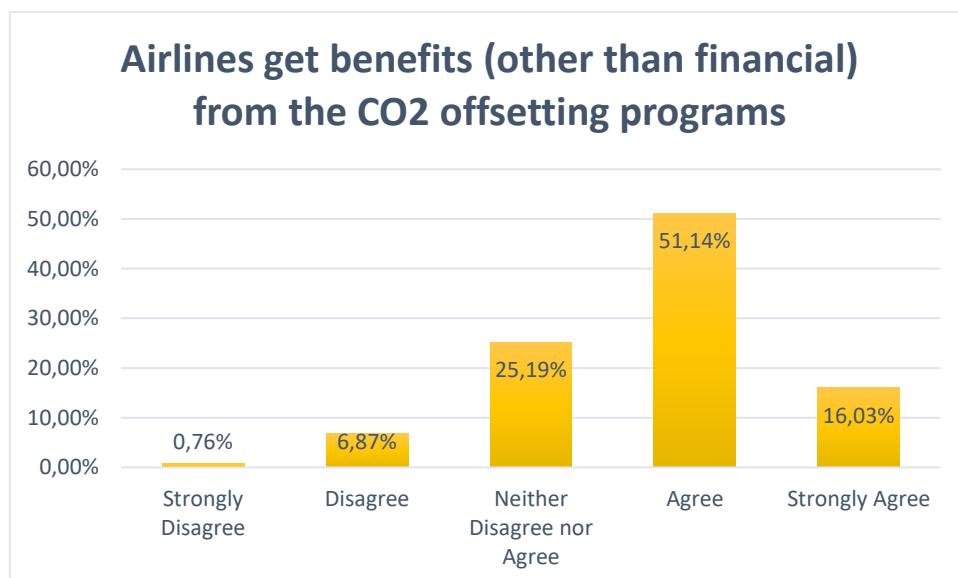


Figure 14. Airline's environmental image perception (II)

4.6. Customer's purchasing behaviour

The purchasing behaviour during the booking process is analyzed in this section. The results of three questions suggest that the customer has a clear idea about what he or she wants to purchase as can be seen in figures 15, 16 and 17, and rarely changes his or her purchase behaviour during the booking process by purchasing additional services or products that he or she has not planned before. 41.98% of the respondents (strongly disagree) and 31.29% of the respondents (disagree) affirm that they do not purchase additional services during the booking process that they have not planned before. In

relation to purchasing additional services in order to enhance their trips, 41.22% of the respondents (strongly disagree) and 38.93% (disagree) of the respondents affirm that they do not buy extras that the airline suggests in order to enhance their trips during the booking process. 28.24% (agree) and 45.03% (strongly agree) affirm that they always buy what they have planned before without making changes during the booking process. Therefore, these findings **fail to reject hypothesis 6**.

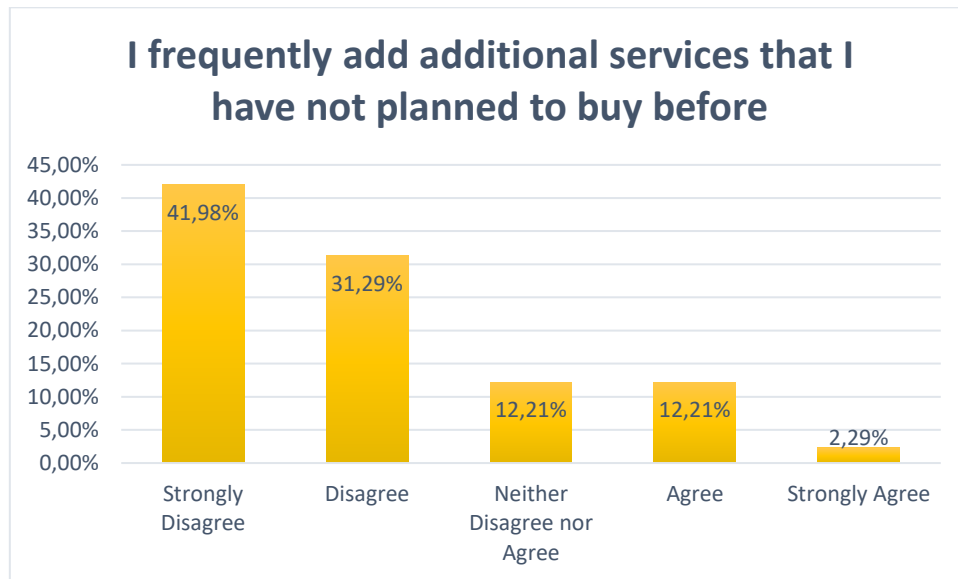


Figure 15. Booking purchase behaviour (I)

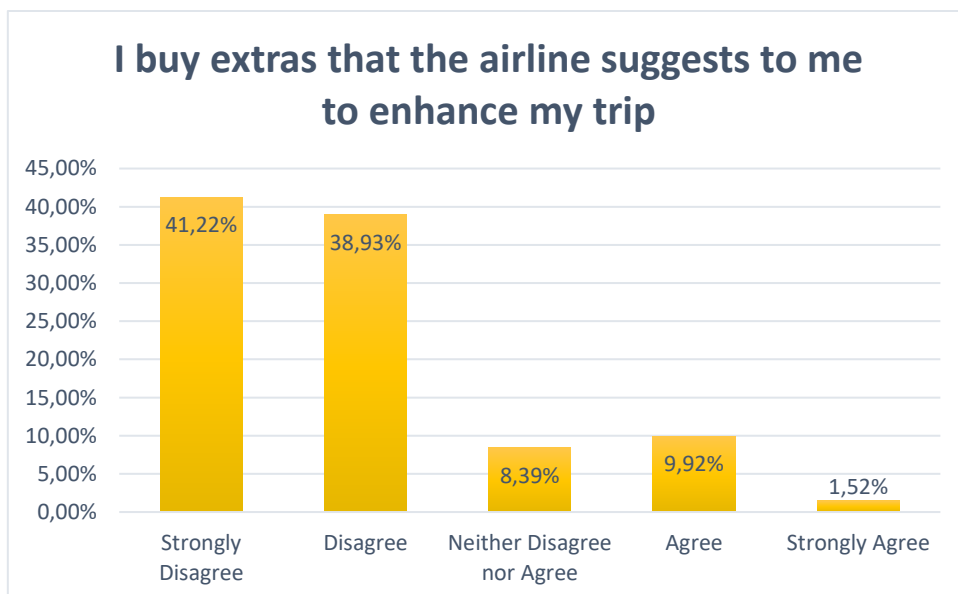


Figure 16. Booking purchase behaviour (II)

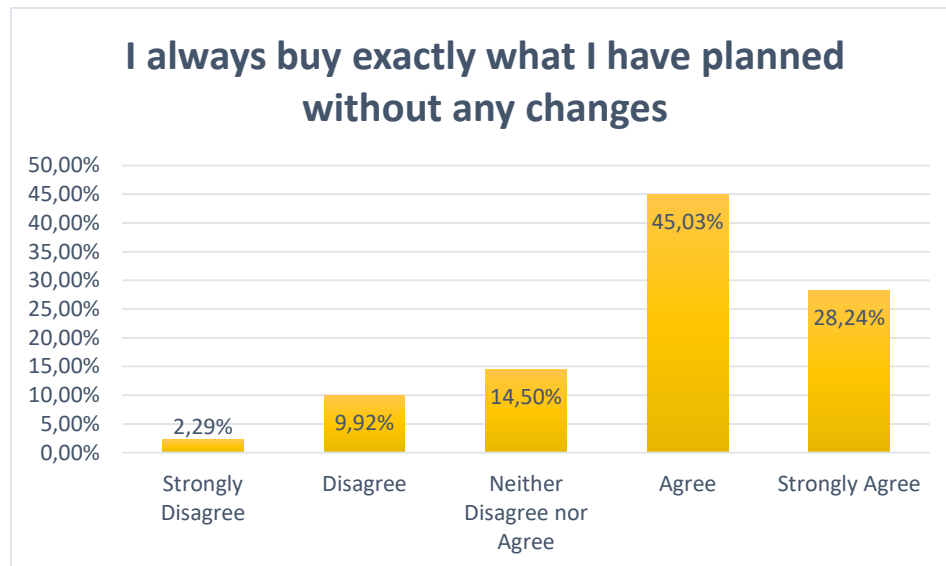


Figure 17. Booking purchase behaviour (III)

4.7. Relationships and differences

After analysing customers perceptions as well as the effects on purchase behaviour this section aims to: first examine the relationship between multiple variables; secondly, identify groups of homogeneous customers and; third examine if there are significant differences among groups. To do this, demographic factors are considered.

Before performing the regression analysis and clustering, the data has been prepared. First, data has been encoded by providing a number to each nominal category so that SPSS can understand and represent it. Computer programs usually understand that higher numbers have a higher weight (DelSole, 2018). However, the answers to some questions of the survey for this study did not follow this assumption (i.e.: see Q13 in Appendix A). To avoid wrong correlations, the answer options for these types of questions have been split into columns and a binary categorization has been applied (DelSole, 2018). In addition, some of the subcategories in the demographic questions have been balanced because there were very few responses for some of these categories. For instance, business reasons and other reasons to travel have been merged into one category. Thereafter, it was identified that, out of the 131 responses, five were completed in less than 200 seconds. Considering that the average time to complete the survey was between 6 to 8 minutes it has been noticed that the answers of these five surveys might affect the Matrix of Pearson Correlations. The Matrix of Pearson

Correlations shows the correlation among variables and the presence of such outliers might affect it (Goodwin & Leech, 2006). In this case, the two matrices are very different (see figure 18 and Appendix C), for this reason it has been decided to remove these five rows. By removing the outliers, it avoids the risk of the regression and cluster analysis being negatively affected. In this Matrix of Pearson Correlations, the dark blue values represent the highest correlation among variables, yellow represents the lowest correlation and white the blank values.

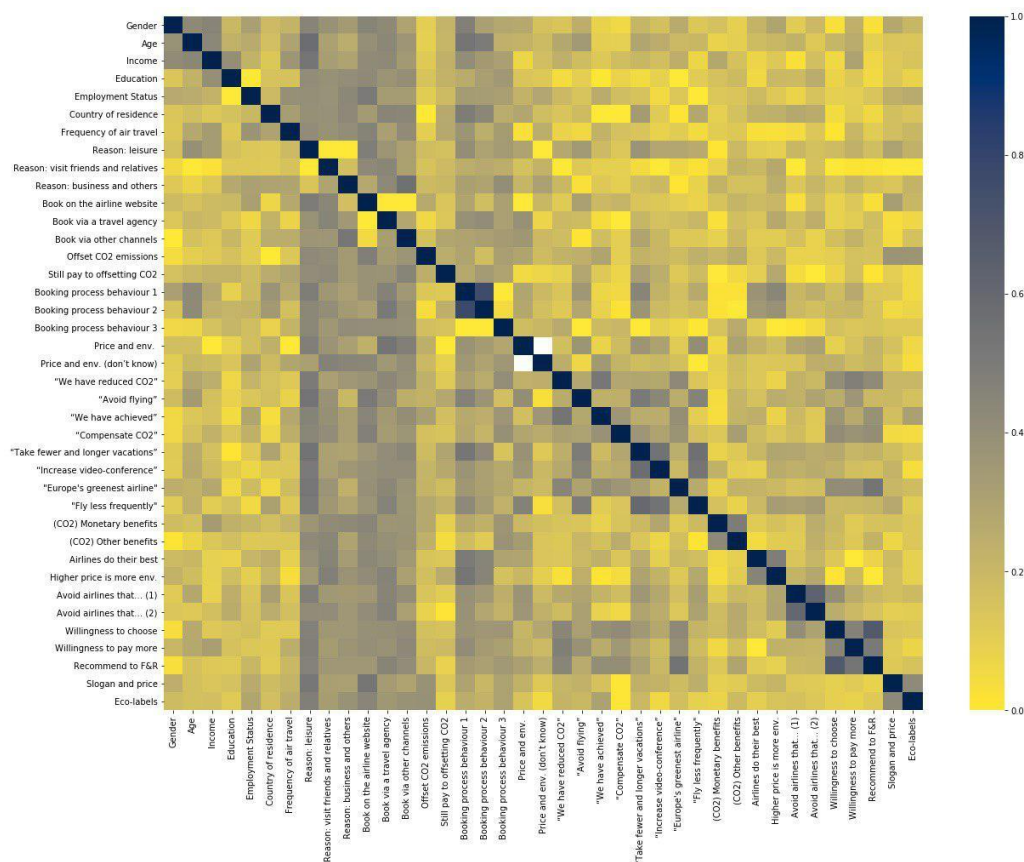


Figure 18. Matrix of Pearson Correlations: 126 surveys answered

The threshold for the significant test is $p < .05$. That means that if the significant value (p) is $< .05$ the relationship among the variables is significant.

From the demarketing messages, *"avoid flying when possible"* is the one that receives more negative responses with more than 50% of negative responses (27.48% unlikely and 23.66% very unlikely) and *"increase the use of video-conferencing tools instead of travelling"* the most accepted one with more than 50% of positive responses (31.29%

likely and 19.08% very likely). Therefore, the first regression analysis examines the relationship between the first demarketing message and six correlated variables (according to the Matrix of Pearson Correlations) and the second regression analysis examines the relationship between the second demarketing message and two correlated variables (according to the Matrix of Pearson Correlations). See tables 2 and 3.

Dependent variable	Independent variables
Avoid flying when possible	Reason: leisure
	Book on the airline website
	I buy extras that the airline suggests to me to enhance my trip
	Take fewer and longer vacations to far away destinations
	Increase the use of video-conferencing tools instead of travelling
	Fly less frequently and shorter distances

Table 2: first regression analysis variables

Dependent variable	Independent variables
Increase the use of video-conferencing tools instead of travelling	Take fewer and longer vacations to far away destinations
	Fly less frequently and shorter distances

Table 3: second regression analysis variables

The results of the first regression analysis are as follow:

The model summary shows that 22% (see Appendix D.1) of variances are explained. Then, the ANOVA table shows that the correlation between the variables is significant (see Appendix D.2). The table of coefficients shows that the independent variables have a significant impact on the dependent variable (see Appendix D.3). The regression analysis results show a good model fit ($R^2=.22$, $F=6,966$, $p<.05$). The model fit indices that 22% of the variance in the dependent variable can be explained by the model. The

results suggest that “book in the airline website” ($\beta=.198, .01>p<.05$), “take fewer and longer vacations” ($\beta=.195, p<.05$) and “fly less frequently” ($\beta=.217, .01>p<.05$) can positively influence the answer in “avoid flying” while “reason: leisure” ($\beta=.078, p>.05$), “booking process behaviour 2” ($\beta=.092, p>.05$) and “increase video-conference” ($\beta=.217, p>.05$) do not significantly affect the it.

The results of the second regression analysis are as follow:

The model summary shows that 27% of variances are explained (see Appendix D.4). The ANOVA table shows that the correlation between the variables is significant (see Appendix D.5). The table of coefficients shows that the independent variables have a significant impact on the dependent variables (see Appendix D.6). The regression analysis results show a good model fit ($R^2=.27, F=2,4323, p<.01$). The model fit indices that 27% of the variance in the dependent variable can be explained by the model. The results suggest that “take fewer and longer vacations” ($\beta=.309, p<.01$) and “fly less frequently” ($\beta=.305, p<.01$) can positively influence the answer in “increase video-conference”.

Regarding the demarketing messages, the K-means cluster algorithm allows to identify four groups of relatively homogeneous customers (see figure 19). As shown in the correlation matrix, the ANOVA table also shows that there is a significant correlation among the four messages $\text{sig}<.05$ (see Appendix E.1). The number of customers in each cluster is balanced. Cluster one is formed by 43 customers, cluster two 19 customers, cluster three 35 customers and cluster four 30 customers (see Appendix E.2).

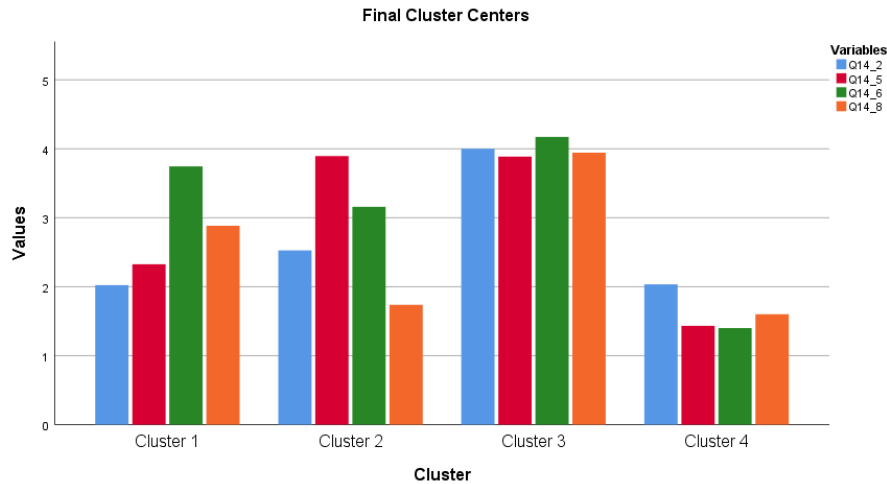


Figure 19. Final Clusters

Cluster one is mainly attracted by the message *“increase the use of videoconference instead of travelling”*. Cluster two is mainly motivated by the message *“take fewer and longer vacations”*. Cluster three is highly attracted by all the demarketing messages at the same level. Cluster four is mainly attracted by the message *“avoid travel when possible”*. The implications of the identification of these clusters are further discussed in the next chapter.

Once the groups are identified One-Way ANOVA analysis will determine if there are significant differences among the four groups of customers.

The dependent variables chosen are gender, age, income, education, employment status, country of residence, frequency of travel, a reason to travel for leisure, a reason to travel to visit friends and relatives, a reason to travel for business and other reasons and the channel used to purchase the tickets.

The results of the test for gender, age, income, education, employment status, country of residence, frequency of travel and purchase channel travel agency are as follow:

- The Test of Homogeneity of Variances shows that the significant value of the eight variables is larger than 0.05 (see Appendix F.1). The ANOVA test results also show that the significance of values is larger than 0.05 for all the variables except for education ($F=4,399$, $p<0.05$) (see Appendix F.2). Thereafter, the Post-Hoc test indicates in the Tukey

that the significant differences in education are between clusters 1 and 2 and between clusters 2 and 4 ($p < .05$) (see Appendix F.3).

The results of the test for employment status, travel for leisure, visit friends and relatives, travel for business and for other reasons, book via the airline website and book via other channels are as follow:

- The Test of Homogeneity of Variances shows that the significant value of the six variables is smaller than 0.05 (see Appendix F.1). Then, the Robust Test of Equality Means (see appendix F.4) demonstrates that there are only significant differences among groups in customers who travel to visit friends and relatives ($F=2,880$, $p < .05$). Finally, in the Post-Hoc test, the Games-Howell (see appendix F.5) shows that there is a significant difference between cluster 3 and 4 ($p < .05$).

Regarding the differences in education among groups, the average level of study in groups one and four is master's degree and these groups significantly differ from group two because the average level of study in the second group is bachelor's degree. In regard to the variable reason to travel to visit friends and relatives, most of the respondents from group three travel for this reason while customers from group four still travel for this reason but it is not their main reason to travel by air. The implications of these differences are further explained in the next chapter.

4.8. Summary

The analysis of the results of the survey has demonstrated that two of the six hypotheses are supported (see table 4) for the population sample of this study. Throughout the analysis, it has been demonstrated that price influences more customers' airline choice than environmental aspects. However, the results prove that unlike eco-labels, demarketing seems to attract customers in the airline industry. Finally, the relationship between demarketing messages and other correlated variables has allowed for the identification of four different groups of customers and the demographic differences among them.

Hypotheses	Supported	Rejected
H1: Price is a significant factor to perceive an airline as eco-friendly.		X
Sub-hypothesis 1 (a): Passengers perceive that when they pay higher prices, the airline is contributing more towards environmental initiatives.		X
H2: Eco-labels influence booking purchase decisions.		X
H3: Passengers will be willing to choose an airline that uses demarketing strategies.	✓	
H4: When air travellers perceive greenwashing, they are less likely to purchase from the airline.		X
H5: Passengers perceive that airlines adopt environmental CSR initiatives for their own interest rather than for the sake of the environment.	✓	
H6: Customers are easier to influence during the booking process.		X

Table 4: Summary of supported and rejected hypotheses

5. Discussion

This chapter aims to present the conclusions by discussing the findings in order to answer the research question and the research objectives of this study. This chapter also outlines the significance of the study for academia and practitioners and proposes future lines of research studies by acknowledging the limitations of the present study.

5.1. Discussion of the findings

The purpose of this study is to understand consumer response towards airline environmental initiatives and to discover successful marketing techniques for the airline industry related to environmental activities.

The findings obtained as a result of the analysis of the data collected help to answer the research question and the research objectives of this study. Firstly, the conclusions from the customers' responses help to achieve the first research objective: *uncover techniques that airlines can use to influence customer choice*. The results suggest that, unlike green marketing (i.e.: unsuccessful response to eco-labels), demarketing practices have a place in the airline industry. Secondly, the identification of different groups of customers helps to achieve the second research objective: *to identify which segments of the population offer airlines the highest potential for profitability from environmental CSR initiatives*. In this regards, four groups of customers whom the airlines should approach have been identified (see figure 19). Below are the recommendations for airlines to engage each group of customers:

For group number one, airlines should target customers whose highest study level is masters. Considering that the message that they liked the most is *"increase the use of videoconference instead of travelling"*, it suggests that if they have a clear and reasonable alternative to flights they will not fly, but when they do they might be likely to choose an airline that is in line to their way of thinking. It is recommended that for this group of customers the airline focus on messages that provide alternatives to fly.

In group two, the demarketing messages should be directed to customers who hold a bachelor's degree. Considering that the message that they liked the most was *"take fewer and longer vacations to far away destinations"*, this group seems to still be willing to travel by airplane, but they would consider not travelling to far away destinations. Hence, the airline may focus on the promotion of closer destinations and maybe the combination of airplane and train tickets.

Group three might be highly concerned about the climate crisis because all the demarketing messages are well accepted. They usually travel to visit friends and relatives. Hence, it can be presumed that they still need to travel by airplane and when they do they might consider the levels of the environmental performance of different airlines. For this reason, it is recommended that demarketing messages stress the environmental reasons to reduce the number of flights.

For group four, airlines should approach them with direct demarketing messages because the most popular demarketing messages among this group is *"avoid flying when possible"* (the straightest demarketing message). Airlines should also consider that the average level of studies in this group is master's degree and that half of them travel to visit friends and relatives. The reasons to travel from the other half are balanced among them.

Once the research objectives are met, the research question *"how can airlines use environmental CSR to impact purchasing behaviour of airline tickets?"* can be answered. The recommendation for airlines is to avoid traditional green marketing techniques because this can create a negative image (as seen in the previous section) and instead they should bet on demarketing practises.

Another significant finding in the analysis is the difference between the results found in this study and the results from previous studies. Unlike Hagmann, Semeijn & Vallenga's (2015) and Mayer, Ryley & Gillingwater's (2015) results, customers in this sample do not consider price as a significant factor to evaluate the eco-friendliness of the airline. This difference might be explained by several varied factors. Firstly, Hagmann, Semeijn &

Vallenga's and Mayer, Ryley & Gillingwater's studies were conducted at the airport where the passengers' behaviour might be different (Tseng & Wu, 2019). Secondly, the population surveyed was different. The previous studies were conducted in Dusseldorf and Liverpool and considering that most of the population of the present study live in Ireland and Spain, there might be some geographical differences that influence customers' behaviour. Thirdly, the previous studies showed the customer the name of the airlines; meanwhile this study presented different prices to customers and asked the passengers to provide their level of agreement or disagreement with some statements. Therefore, it may be possible that when the customers know the airlines, their answers might be biased and rate the eco-friendliness of the airline based on the brand image.

5.2. Significance of the study

As stated in the introduction of the dissertation, this is a current topic and since there is an increasing awareness in climate crisis this research study is highly significant. Anti-flying movements have recently arisen, but the current forecast predicts an increase in the number of flights in the next years. This study offers both theoretical and managerial implications.

5.2.1. Theoretical implications

This study has two main theoretical implications. Firstly, the data analysed has helped to understand consumers' behaviour and purchase intention towards green marketing in the airline industry. For instance, Baumeister & Onkila (2017) suggest eco-labels should be implemented in the airline industry meanwhile this study has shown that eco-labels do not especially attract air passengers. In addition, as Schmuck, Matthes & Naderer's (2018) findings, this study has also found that customers can identify greenwashing but differently from what Dangelico & Vocalelli (2017) state, this research has found out that despite customers are aware of greenwashing, this will not affect their purchase intention. Secondly, previous studies acknowledge marketing has traditionally been blamed for damaging the environment (i.e.: Peattie and Peattie, 2009) and Hagmann, Semeijn & Vellenga (2015) claim the urge of further environmental actions from the airline industry different from what they are currently doing. In this

regard, this study proposes green demarketing practices and it opens a path for further research not only in the airline industry but in any other industry that may directly or indirectly damage the environment.

5.2.2. Managerial implications

Regarding, managerial implications this study proposes a novel marketing approach for airlines and it offers an overview of the segments of the population to approach as well as recommendations for each group of potential customers. In addition, the methods used for the analysis were thought to be easily replicable for practitioners in the industry.

The anti-flying movements are increasing in popularity. Until very recently, flying (especially to very remote places) was considered a fashion trend but nowadays, it is starting to be considered a “shame” as in the example of the Northern European countries. However, considering the future forecasted growth in the number of flights, even though people want to stop flying, sometimes it is inevitable (i.e.: business, family issues etc.), especially if the travel is transcontinental there are currently no alternatives to airplanes. Therefore, it is unlikely that people will not fly at all. Nevertheless, managers in the airline industry should face this change in consumer behaviour and adapt to the new market needs by anticipating their needs. This study may be relevant for marketers in the airline industry that aim to target environmentally aware consumers (after the effects of the anti-flying movements in the north of Europe, this a smart segment of the population to consider). If those customers that would like to avoid travelling by airplane have inevitably to travel by airplane, they might be likely to choose an airline that tries to reduce its number of flights, because as demonstrated in the analysis, customers will be willing even to pay more if they know that the airline is really contributing to environmental initiatives. Nevertheless, airline marketing managers should also consider other factors in their marketing strategies such as price and the aggressive advertisement messages of their competitors as seen in the analysis.

5.3. Limitations

With the benefit of the experience, some limitations have been acknowledged. Three main limitations of the study have been acknowledged. The first limitation is the size of the sample. The number of participants was very small and some of the demographic categories were not balanced. For instance, the number of female respondents was larger than the number of male respondents. Although these aspects did not have a significant implication in the results, a larger and balanced set of data might be more representative. The second limitation was identified during the analysis because the survey offered many options to choose in the demographic questions and some of the groups had to be merged in order to have more significant groups of customers. The third limitation was that despite price questions being included in the survey and helping to understand consumers behaviour and purchase intention, it was not enough to determine whether demarketing practices allow airlines to obtain profits.

5.4. Future research

This research opens a pathway for a future research on demarketing practices not only for the airline industry but for any industry with operations that may directly harm the environment. One possible line for future research might be to study where airlines should position themselves in the marketplace if they adopt demarketing practices. Future researchers might also focus on understanding which specific demarketing practices work better in the airline, and in other, industries. A final line of future research might be to find out whether airlines might still obtain profits from demarketing practices and if so, to explore the ethics of airlines when using demarketing strategies.

5.5. Summary

In conclusion, this study has identified novel marketing practices for airlines that might benefit the environment and it has helped academia to address the existing gaps mentioned above. The main discovery of this study is that demarketing practices have a place in the airline industry. However, it is still uncertain whether airlines can also gain profits from the implementation of these practices. This and other limitations are acknowledged in this study with the aim to encourage future lines of investigation in the

topic. Considering the topic of this dissertation is an emerging trend, hopefully, this study will serve as a source of inspiration and will provide valuable ideas to airlines to become part of the solution to reduce carbon emissions and not just be part of the problem.

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Appendices

Appendix A. Survey

Consumer response towards airlines' environmental initiatives

Hello!

My name is Azucena. I am currently undertaking a Masters in Marketing from Trinity College Dublin and, I need your help to complete my dissertation study!

The goal of this study is to understand the consumer response towards airlines' environmental initiatives. I am also interested in uncovering successful marketing techniques for the airline industry that create the lowest negative impact to the environment.

Your participation in this study is voluntary and will only take about 6 to 8 minutes.

All responses will remain anonymous. Please respond honestly.

If you have any question or any additional feedback, please do not hesitate to contact me at blancosa@tcd.ie

Thank you in advance for your time and participation!

Q1 What is your gender?

- ☐ Female (1)
- ☐ Male (2)
- ☐ Other (3)
- ☐ Prefer not to say (4)

Q2 Which one of the following age groups do you fall into? Select one

- ☐ 18-24 (1)
- ☐ 25-31 (2)
- ☐ 32-39 (3)
- ☐ 40-54 (4)
- ☐ 55-64 (5)
- ☐ 65 years or over (6)

Q3 What is your annual income?

- ☐ Up to €24,000 (1)
- ☐ €25,000 - €34,000 (2)
- ☐ €35,000 - €44,000 (3)
- ☐ €45,000 - €54,000 (4)
- ☐ €55,000 or over (5)

Q4 What is your highest education level?

- ☐ Up to elementary school (1)
- ☐ High school (2)
- ☐ Bachelor's degree (3)
- ☐ Master's degree (4)
- ☐ Doctoral degree or higher (5)

Q5 What is your current employment status?

- ☐ Employed (1)
- ☐ Unemployed (2)
- ☐ Student (3)
- ☐ Retired (4)
- ☐ Homemaker (5)

Q6 Where do you currently live?

- ☐ Ireland (1)
- ☐ Other European country different from Ireland. Please specify (2)

- ☐ Other non-European country. Please specify (3)

Q7 How often do you travel by plane (on average)? Please consider every single flight that you take.

- ☐ 1 - 4 times per year (1)
- ☐ 5 - 8 times per year (2)
- ☐ 9 or more times per year (3)

Q8 What is the main reason you travel by plane?

- ☐ Leisure (1)
- ☐ Business (2)
- ☐ Visit friends & relatives (3)
- ☐ Other. Please specify (4) _____

Q9 How do you usually buy your plane tickets?

- ☐ On the airline's website (1)
- ☐ Through a travel agency (physical or online) (2)
- ☐ Another person purchases the tickets for me (3)
- ☐ Other. Please specify (4) _____

Q10 Would you pay to compensate the CO2 emissions?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Maybe (3)

Display This Question:

If Q10 = Yes

Or Q10 = Maybe

Q11 Would you still consider to pay to compensate the CO2 emissions if you know the airline still contributes to detrimental CO2 emissions?

☐ Yes (1)

☐ No (2)

☐ Maybe (3)

Q12 Think about times that you have bought a plane ticket. Please give your reaction to the following statements being 1 strongly disagree and 5 strongly agree.

	1. Strongly disagree (1)	2. Disagree (2)	3. Neither agree nor disagree (3)	4. Agree (4)	5. Strongly agree (5)
I frequently add additional services that I have not planned to buy before (1)	☐	☐	☐	☐	☐
I buy extras that the airline suggests to me to enhance my trip (2)	☐	☐	☐	☐	☐
I always buy exactly what I have planned without any changes (3)	☐	☐	☐	☐	☐

Q13 You are in the following situation: you are about to buy a round-trip ticket from Dublin to New York for next October. You find three options that are similar (non-stop, similar timings, baggage etc) but differ on price. Which option do you think is more environmentally friendly?

☐ Airline a) €338 (1)

☐ Airline b) €372 (2)

☐ Airline c) €398 (3)

☐ I don't know (4)

Q14 "Someone flying from London to New York and back generates roughly the same level of emissions as the average person in the EU does by heating their home for a whole year" (European Commission). Considering this statement, please rate on a scale of 1 to 5, with 1 being very unlikely and 5 very likely how each of the following environmental messages would motivate you to consider that airline for your future trip.

	1. Very unlikely (1)	2. Unlikely (2)	3. Neither likely nor unlikely (3)	4. Likely (4)	5. Very likely (5)
"We have reduced carbon emissions and increased fuel efficiency" (1)	☐	☐	☐	☐	☐
"Avoid flying when possible" (2)	☐	☐	☐	☐	☐
"We have achieved 33% reduction in inflight waste" (3)	☐	☐	☐	☐	☐
"Compensate the CO2 emissions of your flight by making a voluntary donation to our climate charity partners" (4)	☐	☐	☐	☐	☐
"Take fewer and longer vacations to far away destinations" (5)	☐	☐	☐	☐	☐
"Increase the use of video-conferencing tools instead of travelling (i.e.: work meetings)" (6)	☐	☐	☐	☐	☐
"Europe's greenest airline" (7)	☐	☐	☐	☐	☐
"Fly less frequently and shorter distances" (8)	☐	☐	☐	☐	☐

Q15 Please consider the following statements and rate on a scale of 1 to 5, with 1 being strongly disagree and 5 strongly agree.

	1. Strongly disagree (1)	2. Disagree (2)	3. Neither agree nor disagree (3)	4. Agree (4)	5. Strongly agree (5)
When passengers pay to compensate the CO2 emissions, airlines keep part of that money (1)	☐	☐	☐	☐	☐
Airlines get benefits (other than financial) when promoting green practices or ask me to pay to compensate the CO2 emissions (2)	☐	☐	☐	☐	☐
Airlines companies do their best to reduce CO2 emissions (3)	☐	☐	☐	☐	☐
Airlines with higher prices invest more in initiatives to protect the environment (4)	☐	☐	☐	☐	☐
I avoid airlines that display an eco-friendly image even though they are big polluters (5)	☐	☐	☐	☐	☐
I avoid airlines that ask me to compensate my carbon emissions even though they are big polluters (6)	☐	☐	☐	☐	☐

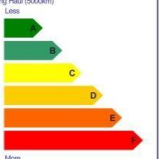
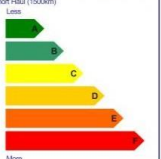
Q16 Imagine that you know an airline that is making real contributions for the sake of the environment. Please rate on a scale of 1 to 5, with 1 being very unlikely and 5 very likely.

	1. Very unlikely (1)	2. Unlikely (2)	3. Neither likely nor unlikely (3)	4. Likely (4)	5. Very likely (5)
I would always choose that airline (when possible) (1)	☐	☐	☐	☐	☐
I would be willing to pay more for the flights tickets (2)	☐	☐	☐	☐	☐
I would recommend the airline to friends and relatives (3)	☐	☐	☐	☐	☐

Q17 You are considering three different airlines for your next trip. The three airlines have launched their promotional campaigns. Which airline would you choose?

- ☐ Airline a) Slogan: "Flights from €20". Flight price: €37 (1)
- ☐ Airline b) Slogan: "If you care about the planet, do not fly". Flight price: €59 (2)
- ☐ Airline c) Slogan: "A great way to fly". Flight price: €45 (3)

Q18 Eco-label is a voluntary labelling system recognised worldwide that rewards products and services that are environmentally superior compared to other products or services and meet high environmental standards (European Commission). See below two examples (Source: Thomas Cook):

Boeing 767		Airbus A321	
Journey Environment		Journey Environment	
CO ₂ Emissions per seat occupied by journey length Long Haul (3000km) Less 		CO ₂ Emissions per seat occupied by journey length Short Haul (1500km) Less 	
More		More	
CO ₂ Emissions per seat occupied by journey length (kg) Short Haul (1500km) Not Applicable Medium Haul (3000km) 175 Long Haul (3000km) 270		CO ₂ Emissions per seat occupied by journey length (kg) Short Haul (1500km) 103 Medium Haul (3000km) 175 Long Haul (3000km) Not Applicable	
Total Aircraft Fuel Consumption by journey length (kg) Short Haul (1500km) Not Applicable Medium Haul (3000km) 10780 Long Haul (3000km) 18740		Total Aircraft Fuel Consumption by journey length (kg) Short Haul (1500km) 6456 Medium Haul (3000km) 10986 Long Haul (3000km) Not Applicable	
Local Environment		Local Environment	
Take off & Landing CO ₂ Emissions (kg) 5254		Take off & Landing CO ₂ Emissions (kg) 3011	
Take off & Landing Local air quality(1) (kg) 12		Take off & Landing Local air quality(1) (kg) 8	
Noise Rating 1.25		Noise Rating 0.75	
Passenger Environment		Passenger Environment	
Minimum Leg Room 29"		Minimum Leg Room 28"	
Number of Seats 326		Number of Seats 220	
(1) Emissions of Nitrogen Oxides as an indicator of the effects on local air quality		(1) Emissions of Nitrogen Oxides as an indicator of the effects on local air quality	

Q19 Now, imagine you have to purchase a round-trip flight with a flight duration of approximately four hours. You have the two options shown above to do that flight. Based on the information of the images above and the price of each option, which option would you choose?

- ☐ Boeing 767. Price: €579 (1)
- ☐ Airbus 321. Price: €500 (2)

Appendix B. Flight Search (Google Flights, 2019)

B.1. Flight search Dublin – New York

Best departing flights ⓘ					Sort by: ⌵	
Total price includes taxes + fees for 1 adult. Additional bag fees and other fees may apply.						
	13:00 – 15:35 Aer Lingus	7 h 35 m DUB – EWR	Non-stop	€338 round trip	⌵	
	11:35 – 13:55 Delta · Air France, KLM	7 h 20 m DUB – JFK	Non-stop	€372 round trip	⌵	
	09:20 – 11:30 United · Lufthansa	7 h 10 m DUB – EWR	Non-stop	€397 round trip	⌵	

B.2. Flight search Toronto – Bogotá. Airbus 320/321. Air Canada & LATAM

 Departure · Tue, 11 Jun Select flight €500 round trip



16:30 · Toronto Pearson International Airport (YYZ)

Travel time: 3 h 7 m

19:37 · Miami International Airport (MIA)

Air Canada · Economy · Airbus A321 · AC 1642

Plane and crew by Air Canada Rouge

Often delayed by 30+ min



03:23⁻¹ · Miami International Airport (MIA)

Travel time: 3 h 41 m · Overnight 

06:04⁺¹ · El Dorado Luis Carlos Galan Sarmiento International Airport (BOG)

LATAM · Economy · Airbus A320 · LA 4365

Plane and crew by Latam Airlines Colombia

 Below average legroom (74 cm)

 Wi-Fi

 In-seat power outlet

 Stream media to your device

7 h 46 m layover · Miami (MIA) · Overnight layover 

 Average legroom (76 cm)

 In-seat USB outlet

 Stream media to your device

B.3. Flight search Toronto – Bogotá. Boeing 767. Air Canada

 Departure · Tue, 11 Jun Select flight €579 round trip



16:40 · Toronto Pearson International Airport (YYZ)

Travel time: 5 h 50 m

21:30 · El Dorado Luis Carlos Galan Sarmiento International Airport (BOG)

Air Canada · Economy · Boeing 767 · AC 1944

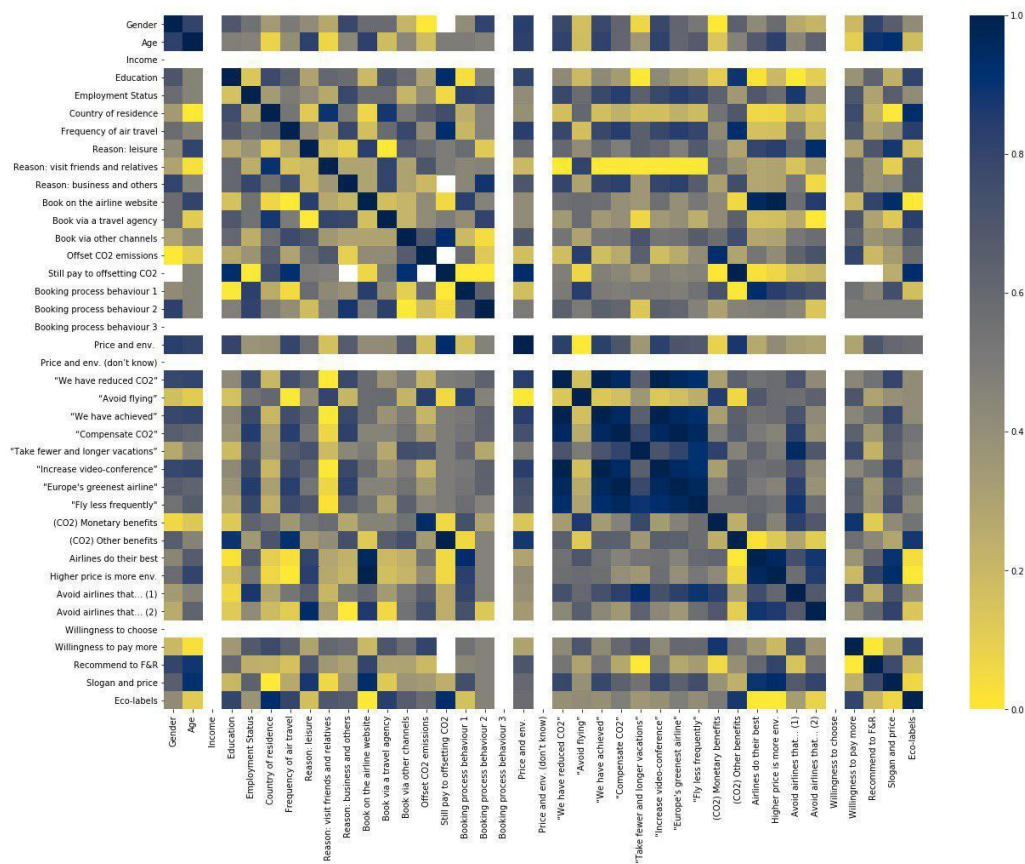
Plane and crew by Air Canada Rouge · Ticket also sold by Avianca

 Average legroom (76 cm)

 In-seat power & USB outlets

 Stream media to your device

Appendix C. Matrix of Pearson Correlations: surveys answered in less than 200 seconds



Appendix D. Multiple Regression Analysis in SPSS

D.1. Model Summary I

Model Summary^b

Model	R	R Square		Std. Error of the Estimate	Change Statistics				
		R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change
1	,508 ^a	,258	,221	1,174	,258	6,966	6	120	,000

a. Predictors: (Constant), "Fly less frequently", Book in the airline website, Booking process behaviour 2, Reason: leisure, "Increase video-conference", "Take fewer and longer vacations"

b. Dependent Variable: "Avoid flying"

D.2. ANOVA table I

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57,620	6	9,603	6,966	,000 ^b
	Residual	165,435	120	1,379		
	Total	223,055	126			

a. Dependent Variable: "Avoid flying"

b. Predictors: (Constant), "Fly less frequently", Book in the airline website, Booking process behaviour 2, Reason: leisure, "Increase video-conference", "Take fewer and longer vacations"

D.3. Coefficients table I

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,204	,421		,485	,629		
	Reason: leisure	,212	,221	,078	,957	,341	,929	1,076
	Book in the airline website	,593	,242	,198	2,456	,015	,949	1,054
	Booking process behaviour 2	,120	,105	,092	1,135	,259	,933	1,072
	"Take fewer and longer vacations"	,211	,106	,195	1,992	,049	,643	1,555
	"Increase video-conference"	,130	,092	,131	1,408	,162	,714	1,400
	"Fly less frequently"	,240	,105	,217	2,287	,024	,686	1,458

a. Dependent Variable: "Avoid flying"

D.4. Model Summary II

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,531 ^a	,282	,270	1,149	,282	24,323	2	124	,000

a. Predictors: (Constant), "Fly less frequently", "Take fewer and longer vacations"

b. Dependent Variable: "Increase video-conference"

D.5. ANOVA table II

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64,195	2	32,097	24,323	,000 ^b
	Residual	163,632	124	1,320		
	Total	227,827	126			

a. Dependent Variable: "Increase video-conference"

b. Predictors: (Constant), "Fly less frequently", "Take fewer and longer vacations"

D.6. Coefficients table II

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
1 (Constant)	1,364	,285		4,788	,000		
"Take fewer and longer vacations"	,337	,095	,309	3,531	,001	,755	1,324
"Fly less frequently"	,340	,098	,305	3,480	,001	,755	1,324

a. Dependent Variable: "Increase video-conference"

Appendix E. K-Means Cluster

E.1. ANOVA table

	ANOVA					
	Cluster Mean Square	df	Error Mean Square	df	F	Sig.
"Avoid flying"	30,792	3	1,062	123	28,982	,000
"Take fewer and longer vacations"	43,229	3	,505	123	85,566	,000
"Increase video- conference"	47,648	3	,690	123	69,043	,000
"Fly less frequently"	36,480	3	,595	123	61,309	,000

E.2. Number of customers per cluster

Number of Cases in each Cluster		
Cluster	1	43,000
	2	19,000
	3	35,000
	4	30,000
Valid		127,000
Missing		,000

Appendix F. One-Way ANOVA

F.1. Test of Homogeneity of variances

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Gender	Based on Mean	2,480	3	123	,064
Age	Based on Mean	1,775	3	123	,156
Income	Based on Mean	2,094	3	123	,105
Education	Based on Mean	1,492	3	123	,220
Employment status	Based on Mean	6,660	3	123	,000
Country of residence	Based on Mean	1,537	3	123	,208
Frequency of air travel	Based on Mean	,761	3	123	,518
Reason: leisure	Based on Mean	8,637	3	123	,000
Reason: visit friend and relatives	Based on Mean	8,130	3	123	,000
Reason: business and other	Based on Mean	7,702	3	123	,000
Book on the airline website	Based on Mean	2,680	3	123	,050
Book via a travel agency	Based on Mean	,729	3	123	,536
Book via other channels	Based on Mean	12,292	3	123	,000

F.2. ANOVA table

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups	,681	3	,227	,783	,506
Age	Between Groups	3,498	3	1,166	,997	,397
Income	Between Groups	5,225	3	1,742	,802	,495
Education	Between Groups	4,597	3	1,532	3,297	,023
Employment status	Between Groups	,782	3	,261	1,112	,347
Country of residence	Between Groups	1,029	3	,343	,925	,431
Frequency of air travel	Between Groups	2,066	3	,689	1,428	,238
Reason: leisure	Between Groups	1,651	3	,550	2,362	,075
Reason: visit friend and relatives	Between Groups	1,872	3	,624	3,404	,020
Reason: business and other	Between Groups	,651	3	,217	1,897	,134
Book on the airline website	Between Groups	,435	3	,145	,730	,536
Book via a travel agency	Between Groups	,067	3	,022	,171	,916
Book via other channels	Between Groups	,831	3	,277	2,749	,046

F.3. Multiple comparisons

Multiple Comparisons

Dependent Variable		(I) Cluster Number of Case	(J) Cluster Number of Case	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound Upper Bound	
Education	Tukey HSD	1	2	,551*	,188	,021	,06	1,04
			3	,185	,155	,632	-,22	,59
			4	,014	,162	1,000	-,41	,44
		2	1	-,551*	,188	,021	-1,04	-,06
			3	-,365	,194	,242	-,87	,14
			4	-,537*	,200	,041	-1,06	-,02
		3	1	-,185	,155	,632	-,59	,22
			2	,365	,194	,242	-,14	,87
			4	-,171	,170	,744	-,61	,27
		4	1	-,014	,162	1,000	-,44	,41
			2	,537*	,200	,041	,02	1,06
			3	,171	,170	,744	-,27	,61

*. The mean difference is significant at the 0.05 level.

F.4. Robust test of equality means

Robust Tests of Equality of Means

		Statistic ^a	df1	df2	Sig.
Reason: visit friend and relatives	Welch	2,880	3	56,320	,044

a. Asymptotically F distributed.

F.5. Multiple comparisons table

Multiple Comparisons							
Dependent Variable	(I) Cluster	(J) Cluster	Mean			95% Confidence Interval	
	Number of	Number of	Difference	Std. Error	Sig.	Lower	Upper
	Case	Case	(I-J)			Bound	Bound
Reason: visit friend Games- and Howell relatives	1	2	-,054	,121	,970	-,38	,27
		3	,066	,087	,870	-,16	,29
		4	-,257	,112	,111	-,55	,04
	2	1	,054	,121	,970	-,27	,38
		3	,120	,120	,749	-,21	,45
		4	-,204	,139	,469	-,58	,17
	3	1	-,066	,087	,870	-,29	,16
		2	-,120	,120	,749	-,45	,21
		4	-,324*	,110	,025	-,62	-,03
	4	1	,257	,112	,111	-,04	,55
		2	,204	,139	,469	-,17	,58
		3	,324*	,110	,025	,03	,62

*. The mean difference is significant at the 0.05 level.