German Generation Y’s Purchase Intention towards Packaging-Free Products: A TPB Approach
Master Thesis in Business Administration

Title: German Generation Y’s Purchase Intention towards Packaging-Free Products: A TPB Approach

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Key Words: zero waste, German generation y, pro-environmental behavior, theory of planned behavior, purchase intention, environmental concern, barriers

Acknowledgement

With a few words, we would like to express our sincere gratitude and appreciation to all people who supported us throughout the journey of writing our master thesis. We would particularly like to thank our supervisor Tomas Müllern, Jönköping International Business School (Sweden), who constantly guided us with helpful advice and feedback and his great mentorship throughout the writing process. Further, we would like to thank our families and friends for their continuous encouragement during this study journey.

Thank you,

Esra Özülkü & Pia Senger
Abstract

Background: The problem of increasing amounts of food packaging waste especially in Germany leads to the challenge of how to minor waste by using no packaging in order to listen to environmental-conscious generation y consumers. This is why retailers need to understand the factors impacting the purchase intention and thus, need to act in higher extend in terms of a preventive sustainable approach.

Purpose: The purpose of this thesis is to examine the purchase intention of German generation y consumers towards packaging-free products. An extended Theory of Planned Behavior forms the theoretical foundation to investigate which factors are influencing the purchase intention the most. In addition to the original TPB factors attitude, subjective norms and perceived behavioral control, the research model was extended by two new factors, namely environmental concern and barriers.

Method: Through an explanatory research method, the data was collected in a quantitative online survey based on a sample of 422 respondents. In order to investigate the relationships among the factors and to further support or reject the study’s hypothesis, the data was analyzed by using descriptive statistics, Pearson correlation and simple and multiple regression. Finally, to determine differences among groups additional tests have been conducted.

Conclusion: The findings of this study revealed new insights about predictors of the purchase intention: German consumers’ intention is mainly impacted by their attitude, followed by the factor barriers, and perceived behavioral control, whereas subjective norms do not. Further, the other newly added factor environmental concern indirectly impacts the purchase intention through attitude. Moreover, the importance of including new added factors to the original TPB model is shown as the extended TPB model has improved its power in explaining German generation y’s purchase intention towards packaging free. By that, the respondents of this study are highly environmental concerned and overall intent to purchase packaging-free products in mainstream grocery stores, oats and milk respectively. This study’s results provide valuable insights for marketers of German mainstream grocery stores who are interested in selectively integrating packaging-free shopping to their stores.
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1 INTRODUCTION

1.1 Research Background

„If all the world’s citizens lived as Europeans, we would need more than two and a half planets to provide the necessary resources, absorb our wastes, and leave some capacity for wild species“ (Global Footprint Network, 2007). Looking beyond the borders, the rest of the world is facing similar issues and still, today’s society is characterized by overconsumption and single-use lifestyle.

In the past few decades, packaging waste, much of it is food wrapping, has become a serious concern since the negative impact to the environment is far reaching. The most recent compiled waste-generation statistics by Eurostat (2017) estimates that within the European Union around 83 million tons of packaging waste was generated in 2014. This makes an average of 160 kg packaging waste produced per person per year, although there is considerable variation across countries. In Germany, the amount of packaging waste produced per person is the highest with 220 kg, which is in contrast more than four times higher compared to Croatia having the lowest with 48.3 kg per person (Eurostat, 2017). However, convenience features, in particular such as unit packages, dispensability, microwavability etc., normally require extra packaging thus significantly add to the total amount of waste generated (Marsh & Bugusu, 2007). Therefore, when it comes to the most common types of packaging waste it has been found that paper and cardboard constitute the largest proportion at 41%, followed by glass and plastic (each 19%) (Eurostat, 2017).

The questions remain how to tackle packaging waste and what the options are. According to D’Costa (2016), expert on food industry, packaging waste is inevitable, however industry-players should switch to alternatives such as hybrid, sustainable and intelligent packaging. Another trending concept to combat packaging waste in a more preventive approach are so called “zero waste” grocery stores. Lately, this kind of grocery stores have popped across the globe (Bepakt, n.d.-a). All shop owners have a common philosophy: pre-cycling by not generating packaging waste in the first place. This is based on the premise that consumers bring their own containers, glass jars, or cloth bags to transport their purchased products. In few countries, mainstream food retailers have slowly started to integrate this philosophy of packaging-free shopping as a complementary service to their existing way of selling products to customers (Flosino, 2016). This might be due to the fact that retailers listen to consumers demand for more sustainable related initiatives.
In this vein, generation y consumers make up an interesting case to examine, because it seems like packaging-free shopping meet their socio-cultural desires. Generation y, born between 1980-2000 (Oxford Dictionary, n.d.), are the “born green”-generation in terms of growing up in times where environmental consciousness turned into a norm. There is a trend among this generation y in shifting to greener attitudes and behavior (Rogers, 2013) and to put those values into daily practice (Nutraceuticals World, 2012). In addition, they have a great spending power (Sox, Kline & Crews, 2014) and make up today's largest segment of the population (Nielsen, 2015) which is why it is crucial from a retailer perspective to target their needs. This said, generation y’s shopping behavior might lay the groundwork for a more sustainable future and shape a new retail landscape. To investigate the reason for German generation y’s behavioral purchase intention, factors that predict and drive consumers’ intention need to be determined. In regard to this, this can be accomplished by using the broadly adopted and robust Theory of Planned Behavior (TPB) which focuses on how consumer’s intention based on key factors is impacting human behavior. Nevertheless, there are some shortcomings and the factors of the TPB model differ in research in terms of importance. Further, the TPB model has not been applied to the specific sustainable context of the packaging-free product domain. Therefore, the ambition of this work is to apply this model to the study’s context while extending it by incorporating additional factors. By that, this study contributes to shed light in a relatively new area of research, the packaging-free product purchase intention among the German generation y context, and determines in what extend the newly added factors, environmental concern (EC) and barriers, next to the original TPB factors, attitude, subjective norms (SN) and perceived behavior control (PBC) can be considered of importance towards the purchase intention.

1.2 Problem Definition and Research Purpose

The problem focused in this research is caused by the immensely growing food consumption, which in turn results in increased packaging waste and highly impacts the environment negatively. As mentioned above, particularly generation y consumers do care and tend towards a growing environmental concern. That is why retailers need to promote and provide consumers with sustainable and less wasteful food options. Even though their traditional approaches like recycling or reuse, which are common in most conventional grocery stores, is going in the right sustainability direction, they need to act in a higher extend in terms of a preventive approach. By this, they should aim to the highest favorable action towards minimizing waste, namely not even create any waste at first place. This problem of increasing amount of food packaging
waste, especially in Germany, leads to the challenge of how to minor waste by using no packaging in order to listen to environmental-conscious generation y consumers.

Therefore, the purpose of this thesis is to examine the purchase intention of German generation y consumers towards packaging-free products and determine which factors in terms of the extended TPB are influencing such the most. The purchase intention of the original TPB model is directly driven by three major factors attitude, SN and PBC. Further, to meet the purpose of this research we will extend this model with two factors, namely EC and barriers.

1.3 Research Questions

Research question 1:
Which factors of the extended TPB model determine German generation y’s purchase intention towards packaging-free products in mainstream grocery stores the most?

Research question 2:
What is the nature of German generation y’s purchase intention towards packaging-free products in mainstream grocery stores?

1.4 Significance of the Study

To maintain a more sustainable society a handful of zero packaging food retailers have opened in Germany, mostly in urban areas (Bepakt, n.d.-b). But what are the shopping options when such a store is not nearby? Indeed, there are very limited existing alternatives, because hardly any German mainstream grocery stores have incorporated bulk selling in their stores yet.

Therefore, the knowledge about German generation y consumers behavioral intention to buy packaging-free food products is of relevance to a number of stakeholders: Practically, it can be important to German mainstream retailers who are interested in selectively integrating the bulk selling approach to their stores. The results of this study will in particular benefit them by helping to provide a better understanding of key factors that influence the behavioral intention such as barriers to packaging-free shopping from the consumers point of view. The gained
knowledge can then be used to devise specific actions in order to respond to those identified factors more precisely. This in particular might also be of interest for already established zero packaging food retailers in Germany that have not been able to attract generation y consumers. Lastly, the findings of this study will be relevant for brands since packaging usually serves a vital role when it comes to facilitate consumers purchase decision (branding/marketing).

To date, research has been undertaken to study the behavioral intention of sustainability-minded consumers in terms of for instance (organic) food choices, pro-environmental behavior such as recycling (Armitage & Conner, 2001; Bamberg, 2003; Davis, O’Callaghan, & Knox, 2009; Dean, Raats & Shepherd, 2012) but does not focus on packaging-free food shopping itself. The present study aims to fill this existing research gap. Moreover, most studies have investigated consumers behavioral intention towards generic sustainable food products (Scalco, Noventa, Sartori & Ceschi, 2017), which is why the research at hand will focus on specific food categories. Thus, theoretically, this study contributes to the TPB literature by applying it in a novel context.

### 1.5 Delimitations

The scope of this study focuses on preventive approaches in the context of packaging-free shopping, to minimize food packaging waste. However, this does not entail the secondary or tertiary packaging when delivering food items from manufacturers to retailers. Moreover, the present study considers the possibility to buy certain food products without primary packaging from a consumer perspective only.
2 THEORETICAL FRAME OF REFERENCES

2.1 Packaging Waste

Following Leigh, Jonson and Smith (2006) packaging serves two principal purposes: First to protect the product from any kind of damage and keep it safe throughout the entire supply chain and all the way to the time of consumption. Second, to provide information which can further be differentiated in compulsory information including nutritional values, ingredients list, net weight etc. as well as marketing information such as cooking instructions, recipes etc. just to name a few. Also, Marsh and Bugusu (2007) summarize in their scientific paper that traceability, convenience, and tamper indication are secondary packaging functions, which are getting more relevant lately.

From the marketing point of view, packaging has become an integral part of the product being sold. Coca Cola’s “Share a coke” campaign, in which the iconic brand logo was traded out for popular names, has been one of the most ingenious over the last years. With regard to this, Gravely (2017) as well as Long (2016) point out that Millennials in particular embrace this concept of individuality because they crave authenticity. Similarly, Conran (2014) underlines that Tiffany & Co.’s jewelry is a prime example to illustrate the power of packaging as a strategic branding tool: the tiny “robin’s egg blue” box is possibly more recognizable than the product itself. In this case packaging helps to frame the value of the product. Schmitt (1999) in his book Experiential Marketing says, “It’s happened more than once that someone has put a gift, bought elsewhere, into a Tiffany box in order to enhance its value.”

Packaging provides many benefits and functions but once these have been fulfilled, packaging becomes waste and leads to environmental damage. Recognizing this issue, the European Union has revised the waste framework Directive in 2008. Part of this is a five-step waste hierarchy involving waste prevention, re-use, recycle, recovery, and disposal (Figure 1).
Waste prevention, often referred to source reduction, is about not generating waste in the first place and closely linked to changing manufacturing methods as well as consumer’s behavior (European Commission, 2010). In means of food packaging this could be achieved by for instance using refillable containers or using less packaging per unit (Marsh & Bugusu, 2007). In this regard, we would like to stress that source reduction and convenience features in particular are perceived to have incompatible goals. Re-use encourages a second or repeated use of materials and products be it clothes, refrigerators, egg cartons or anything else. Recycling includes reprocessing waste to turn them into new substances or products, unlike re-use in which a product is refurbished to use it in its original form (European Commission, 2010). In fact, many grocery stores offer recycling opportunities to customers by placing collection bins outside the stores (Campbell, 1994). Simultaneously, recycling decreases the amount of material needed from the natural environment. Recovery refers to the energy extraction from waste – even though the resource is destroyed in this step it is still more preferred than landfilling it (European Commission, 2017). The least favored option, which is also the oldest form of waste treatment, is to deposit at a registered landfill or incineration without energy recovery (European Commission, 2010).

According to Paben (2017), it seems like recycling is the predominant waste management option since recycling rates continue to rise. However, members of the European Union ideally move up the waste hierarchy because it is considered to be the most sustainable way to reduce the overall waste generation and its environmental impact (Marsh & Bugusu, 2007). One of the
best practices for waste prevention are so called “zero waste” approaches. The term zero waste was first coined in 1973 by chemist Paul Palmer and his recycling company “Zero Waste Systems”. Palmer’s focus was on the reduction of the amount of chemicals produced and disposed of in the electronic industry (Palmer, 2005). He has expanded his work on zero waste, writing “Getting to Zero Waste“ in 2004 and directing the Zero Waste Institute. There are several definitions among scholars and practitioners about the term “zero waste”. The view taken in this thesis is based on the Zero Waste International Alliance because it is the first peer-reviewed internationally accepted definition. Thereby, the term is defined as following: “zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use” (Zero Waste International Alliance, 2009). In other words, the idea is to prevent waste and expand the reuse as well as recycle to manage the world’s resources.

Adopting this approach, around 120 zero waste stores have popped around the world, approximately 65% are located in Europe (Bepakt, n.d.-a). The key concept is sustainable grocery shopping by eliminating packaging. Accordingly, these stores have been solely devoted to offer unpacked products allowing customers to bring their own jars and bags to buy the exact quantities they need, which is also known as “bulk selling” (Ball, 2016). Although it is a very favorable approach, the niche position indicates a limited reach and the small impact of such stores efforts to significantly contribute to packaging waste reduction. Mainstream retailers on the other hand hold a very powerful position since they dominate the food retail market which enables them to drive changes in consumers behavior and promote sustainable consumption (Jones, Comfort & Hilliert, 2011).

2.2 The Theory of Planned Behavior (TPB)

Considered to be one of the most broadly applied and well-known theories in social psychology (Greve, 2001), the TPB has the main focus on how individual’s intention based on key determinants predicts the human behavior (Ajzen, 1985). It is an extended model of the theory of reasoned action (TRA) which is limited in situation where people have incomplete volitional control (Fishbein & Ajzen, 1975). Hence, TPB designates an additional attitudinal and central antecedent of behavioral intention, the perceived behavioral control (PBC), aside from the two existing ones of the TRA: attitudes and SN. These three key factors form the behavioral
intention. Thus, a more favorable attitude and SN towards a behavior as well as a stronger PBC, the more likely will the intention to conduct a certain behavior be (Ajzen, 1991).

The TPB has been found as a very useful predicting power in numerous behavioral domains (Ajzen, 2002; Eagly & Chaiken, 1993; Kassem & Lee, 2004; Murnaghan et al., 2010; Sparks & Shepherd, 2002). Although there has been very limited research in predicting consumers intention towards unpacked food using the TPB, it has been extensively applied to food choice studies (Armitage & Conner, 2001). In the meta-analysis by Armitage and Conner (2001) the model has found robust support to explain variances between intention and behavior (respectively 39% and 27%). In addition, it has been successfully made use of in research about soft drink consumption among teenagers (Kassem & Lee, 2004), fruit and vegetables consumption in relation to smoking and physical activity (Murnaghan et al., 2010) and the purpose to consume genetically modified foods (Sparks & Shepherd, 2002).

Moreover, TPB operates as a very powerful model to predict pro-environmental behavior in a wide range of fields (Bamberg, 2003; Sheppard, Hartwick & Warshaw, 1988). Consumer intention through the TPB has been used for instance to predict green hotels and restaurants (Chen & Tung, 2014; Kim, Njite & Hancer, 2013), green purchase behaviors (Chen & Tung, 2014; Davis, O’Callaghan & Knox, 2009; Ha & Janda, 2012), recycling behaviors (Davis et al., 2009; Davis, Phillips, Read & Iidad, 2006; Newholm & Shaw, 2007; Tonglet, Phillips & Read, 2004), and organic food choices (Arvola et al., 2008; Dean et al., 2012; Dowd & Burke, 2013; Scalco et al., 2017; Smith & Paladino, 2010; Thøgersen, 2002; Zagata, 2012).

It has been applied especially in the context of literature related to organic food across various cultures: Arvola et al. (2008) used the TPB as theoretical framework by studying organic food purchase intention across UK, Italy and Finland, Zagata (2012) applied it in the Czech Republic, Thøgersen (2002) in Denmark and Smith and Paladino (2010) in Australia. Even though the findings of the above-mentioned research are the same in regard of the applicability of the TPB relating to organic food choices, these studies are country-specific and cannot be easily generalized and only carefully applied outside their country-context depending on several factors like culture and personal experiences (Green et al., 1983; Lee & Green, 1991). Nevertheless, the results of the meta-study by Scalco et al. (2017) support the robustness of the TPB to predict organic food consumption in general. In addition, many articles focus on TPB applied to organic food choices like Dean et al. (2012) which makes the individual’s intention to buy organic tomatoes by adding factors like moral norms and self-identity of discussion.
Further, Dowd and Burke (2013) investigated the impact on buying intentions of sustainable food through food choice motives and ethical values. Applying TPB to youth, de Leeuw, Valois, Ajzen and Schmidt (2015) focused in their research the pro-environmental behavior among young consumers. By contrast, Yadav and Pathak (2016) findings partially support of the TPB model predicting teenager’s organic food purchase intention.

Another specific context, where the TPB has been proposed to are the consumers’ food waste and recycling behavior. Davis et al. (2006) analyzed the influence from internal and external factors of recycling participation by using the TPB, whereas another research examined sustainable attitudes and behaviors regarding recycling and waste minimization (Davis et al., 2009). Despite the results of research studies acknowledging TPB has been proven to apply successfully (Visschers, Wickli, & Siegrist, 2016), researcher Stancu, Haugaard and Lähteenmäki (2016) and Stefan, van Herpen, Tudoran and Lähteenmäki (2013) suggest considering adding food-related routines and habits when predicting food waste behavior.

2.2.1 Attitude

Attitude toward the human behavior refers to an individual’s evaluation of being favorable or unfavorable to perform a certain behavior by being aware of the consequences of such (Ajzen, 1985). This awareness results in a positive or negative attitude toward the behavior. In terms of a favorable attitude, when the outcomes are evaluated in a positive way, the more likely a person will intend to perform so under consideration (Ajzen, 1991). In other words, it refers to the individual’s own attitude (for instance if this person evaluates its behavior as good, wise, beneficial, etc.) formed by experiences and impressions learned in life. These lead to a set of beliefs including object’s attributes or consequences, called behavioral belief, to determine its attitude in a given situation (Ajzen, 1991; Fishbein & Ajzen, 1975).

In line with Kotchen and Reiling (2000) and many other researchers (Al-Swidi, Huque, Hafeez & Shariff, 2014; Arvola et al., 2008; Guido, Prete, Peluso, Maloumby-Baka & Buffa, 2010; Sparks & Shepherd, 1992), attitude determines mainly the intention toward the behavior, specifically the key function of a person’s attitude in forming environmental conscious purchase intention (like organic food) is proven (Scalco et al., 2017). Sparks and Shepherd (1992) investigated consumer buying behavior of organic vegetables and verified that attitude is essential in shaping it, by instantly impacting the purchase intention. In addition, other
researchers observed the importance of the relationship between consumption and intention based on beliefs in terms of organic food features and related identified advantages to or on the environment (Arvola et al., 2008). Although the crucial role applying TPB to predict purchase intention of organic food items is successfully proven among many studies, the strength of the connection between attitude and behavioral intention alter for instance between strong correlation \((r=0.80; \text{Al-Swidi et al., 2014})\) and weak correlation \((r=0.27; \text{Guido et al., 2010; Scalco et al., 2017})\). This positive relationship between attitude and behavioral intention has been observed in the packaging domain by Birgelen, Semeijn and Keicher (2009): when consumers are positive about preserving the environment their attitude towards pro-environmental beverage packaging will increase. A similar result was accomplished by Meneses and Palacio (2005) who figured out that household members with favorable attitudes towards environmental and ecology protection are of the same increased interest towards recycling behavior. Therefore, it is hypothesized that:

**H1: Attitude will positively influence German generation y’s purchase intention towards packaging-free products**

2.2.2 Subjective Norms
SN as the second determinant of behavioral intention, relate to a person’s perception of social pressure about what relevant others are thinking and expecting of that individual (Ajzen, 1991). In other words, when the pressure of engaging in a specific behavior is increased, the more the individual will be motivated to comply with it and behave in that given way as social surroundings expect or wish (Ajzen & Fishbein, 1980). Similar to attitude, SN compromise a set of normative beliefs about an individual perceived pressure including the motivation to perform the right behavior (Ajzen, 1991).

However, in literature the efficacy of SN to explain consumers intentions is debated (Armitage & Conner, 2001). As a result, some analysis regarding food choices are not considering SN as a variable (Armitage & Conner, 2001; Sparks, Shepherd, Wieringa, & Zimmermanns, 1995), or ascribe it as a weakest determinant (Blanchard et al., 2009; Honkanen, Olsen, & Verplanken, 2005). Also, in terms of food waste, since it is of minor visibility to external parties compared to other kinds of environmental friendly behavior such as recycling, it is seen as a minor influence of the intention to affect food waste behavior (Russell, Young, Unsworth & Robinson, 2017). In contrast to this, Do Valle, Reis, Menezes and Rebelo (2004) and Oskamp et al. (1991)
stated that social impact by relevant others, such as family and neighbors, is indeed a crucial driver of handling recycling. Same is suggested by Kumar (2012) in terms of purchasing green products. Further, Zagata (2012) asserts that for instance work colleagues have an insignificant effect.

Moreover, recent literature reported SN as an essential predictor of intention and confirms a positive link between each other, resulting into organic food buying intention (Dean et al., 2012; Ha & Janda, 2012) as well as into pro-environmental consumption (Khare, 2015; Moser, 2015; Tsarenko, Ferraro, Sands & Mclead, 2013). To examine the relationship between SN impacting the purchase intention, following hypothesis can be derived:

**H2: Subjective norms will positively influence German generation y’ purchase intention towards packaging-free products**

### 2.2.3 Perceived Behavioral Control (PBC)

Lastly, PBC refers to the perception and control of internal and external factors that might hinder or facilitate the achievement of a behavior and its result (Ajzen & Madden, 1986). Besides, it reflects the above mentioned volitional control, the perceived controllability an individual has (in terms of the ability and opportunity) to perform a particular behavior. According to Sparks, Guthrie and Shepherd (1997) PBC consist of internal factors, which the individual personally can control and external factors, perceived difficulties, such as price and availability risking or benefiting the degree of personal control over a given behavior. By this, those who have a greater personal control and all available means as well as opportunities intent more likely to comply with a certain behavior (Ajzen, 1991).

In the consumer behavioral context, many studies have documented that PBC is favorably related to intention in a number of research contexts like recycling (Tonglet et al., 2004), organic food (Dowd & Burke, 2013; Robinson & Smith, 2002) and eco-friendly products overall (Moser, 2015). According to Paul, Modi and Patel (2016) and Dowd and Burke (2013), PBC and consumer attitude substantially forecast purchase intention in product consumption. Surprisingly, Yazdanpanah and Forouzani (2015) findings investigated the same PBC factors like Dowd and Burke (2013), but no significant correlation was shown. Frequently, perceived difficulties to the buying of sustainable food products is related to the increased prices and less favorable availability that determine this type of products (Robinson & Smith, 2002).
of perceived control, Tonglet et al. (2004) indicated that PBC heavily correlates attitudes
towards recycling. Based on the findings above, it is hypothesized that:

\[ H_3: \text{PBC will positively influence German generation y’s purchase intention towards}
\]
\[ \text{packaging-free products} \]

2.3 Adding New Factors to the TPB

Although the fact that the TPB consists of three primary determinants, namely attitude, SN and
PBC which define the behavioral intention, increasing evidences in previous literature has been
discovered: when this model is applied to specific areas and situations, some crucial factors are
missing (Armitage & Conner, 2001; Donald, Cooper & Conchie, 2014). Indeed, according to
Ajzen (1991), the TPB can be modified and extended. To accomplish shortcomings, it can be
enhanced by including additional predictors to increase the predictive usability of the TPB
framework across diverse domains. As already pointed out above, researchers made use of this
modification by extending their applied TPB framework with new variables.
The present study also includes two additional factors in the TPB to meet the purpose of this
study to investigate the purchase intention of packaging-free products i.e. environmental
concern (as a determinant of attitude) and barriers. The factors in general as well as existing
literature will be discussed in the following and hypotheses will be proposed.

2.3.1 Environmental Concern

Environmental issues like the growing amount of waste through food packaging and its adverse
influence on society has been in the mind of consumers. This has carried out in a shift of
consumer behavior and demands towards environmental sustainability (Mendleson &
Polonsky, 1995), also described as green movement (Moisander, 2007). To counteract these
environmental impacts, environmental protection can be accomplished by for instance
consumers environmentally friendly consumption or purchase behavior. This relates to green
or sustainable products which are in favor to the environment (Chan, 2001; Mostafa, 2007)
including for instance eco-friendly carry bags, recycled papers or energy efficient appliances
(Joshi & Rahman, 2015; Lee, 2008). The term sustainable consumption indicates by the
Norwegian Ministry of Environment (1994) “the use of goods and services that respond to basic
needs and bring a better quality of life, while minimizing the use of natural resources, of toxic
materials and emissions of waste and pollutants over the life-cycle, so as not to jeopardize the needs of future generations”.

According to Fishbein and Ajzen (1975), attitudes generally predict strongly a specific behavioral intention. Thus, according to environmental conscious consumer literature, the attitude towards eco-friendly products including personal beliefs regarding purchase decision of pro-environmental products, shapes the intention towards a given behavior (Hines et al., 1987; Kaiser & Gutscher, 2003; Riethmuller & Buttriss, 2008). This is supported by the TPB, which verifies that (environmental) beliefs form attitudes transferred into intentions (Ajzen, 1991). In other words, EC indirectly impacts the purchase intention, whereas all the other factors directly influence the purchase intention. Consequently, individuals with an increased positive attitude towards overall eco-friendly products tend to be more engaged in the purchase decision for such items (Chen & Chai, 2010; Joshi & Rahman, 2015; Lee, 2008).

This environmentally friendly described attitude is driven by EC, which indicates the individuals’ awareness of problems in the environment and their support efforts as well as willingness to solve this issue (Dunlap & Jones, 2002). In environmental behavioral research EC is essential and has an influence determining green behavior (Hines et al., 1987) as well as a positive relationship with consumer's intention while making decisions such as purchasing eco-friendly items (Pagiaslis & Krontalis, 2014). Moreover, according to Tregear, Dent and McGregor (1994), individuals who are highly involved with organic products are more likely to react positively to relevant topics such as involving in pro-environmental activities, which can be referred to as their EC. In other words, consumers with enhanced EC ensure a higher probability of purchasing green products than consumers with low levels (Bamberg, 2003; Kalafatis et al., 1999). This relates to studies which stated that the concern for the environment has a substantial impact on one individual's attitude towards green products, which in addition positively affects their intention to purchase (Mostafa, 2007; Paul et al., 2016; Yadav & Pathak, 2016). Moreover, Mostafa (2009) defined EC as one of the key variables impacting consumers' attitude and their intention to purchase eco-friendly products. Other researchers have verified the importance of EC in their studies (Corral, 2003; Freire da Silva, 2014).

Thus, the study at hand will apply the TPB as its theoretical framework and attempts to add a further factor, the EC, in TPB as the determinant of attitude toward the purchase intention of packaging-free products. Therefore, the discussion above results into the following hypothesis:
### 2.3.2 Barriers

When studying the consumers intention of buying packaging-free food items we assume that customers are facing different barriers to do so.

In literature, some researchers have investigated motivators of buying environmental friendly food by for instance looking into broad variety of factors by comparing organic to non-organic food (Lockie, Lyons, Lawrence & Grice, 2004). Barriers in terms of the TPB, despite the perceived difficulties included in the PBC such as price and availability, have not been looked into. Nevertheless, the factor convenience plays a major role (Honkanen & Frewer, 2009) and has been proven to be of high importance in food choice behavior (Steptoe, Pollard & Wardle, 1995). By this, the first barrier studying in this present research is the lack of convenience which requires additional effort since buying bulk may not seem to be that practical. Most of the studies analyzing food consumption behavior refer convenience as a characteristic of a product itself, as well as the ability of consumers to apply specific resources, such as time consumption (Gofton, 1995). In Furst, Connors, Bisogni, Sobal, and Falk research (1996) time was stated as an essential element of convenience. Further, time was related as a commodity to be saved or spent. As a result, one barrier can be described as the organizational aspect in terms of time. When purchasing packaging-free food, the customer need to bring for example a jar or container, where he or she can fill it up without creating any waste at all. This has to be planned accordingly. Further, the consumer has to manage this physically. When a customer wants to buy high amount of food items, many jars has to be bring with. Another factor to consider is the lack of accurate information, which is missing on a packaging-free food item outside the store such as at home since its stored in customer’s owned containers. As mentioned in chapter 2.1, packaging has specific functions for instance nutrition information, the ingredient list or an expiration date. Additionally, without packaging there will not be any instructions how to prepare a dish or other inspirations. By this, when consumers attach high value of this factor of information, this could be a barrier impacting the purchase intention negatively.

Moreover, it is claimed that generation y portrays a convenience society as convenience customers (Frumkin, 2015). Hence, it can be assumed that the factor barriers play a significant
role towards purchase intentions especially for this generation. Following, it is hypothesized that:

| H4: Barriers will negatively influence German generation y’s purchase intention towards packaging-free products |

2.4 Conceptual Model

Based on the discussion above, the following conceptual model has been established. This proposed research model is based on an extended TPB-framework within its hypotheses to examine the purchase intention of German generation y consumers towards packaging-free products and how the analyzed factors are influencing this intention the most. The theoretical foundation primarily rests on attitude, SN, and PBC as the main determinants in the proposed model. These are portrayed normal framed below in Figure 2. Additionally, the factors environmental concern as the determinant of attitude and the factor barriers, shown below in dashed frames, extend the applied TPB-framework in the present study.

Hereafter, each relationship in the conceptual model, which (in)directly affects the purchase intention, will be tested and illustrated.
3 METHODOLOGY

3.1 Research Philosophy

In methodology a researcher starts with the research philosophy by stating its view and understanding of the environment and nature of knowledge which is the base for each stage of the research process like research strategy and method (Saunders, Lewis, & Thornhill, 2009). Therefore, Saunders et al. (2009) research onion (Figure 3) will be used as a guidance of the present study by identifying critically the subject of the study from the outer layer to the inner one.

![Figure 3: The Research Onion](source)

According to Saunders et al. (2009) research onion, there are four main research philosophies which reflect the author's assumption about the development and nature of knowledge. These are called positivism, realism, interpretivism and pragmatism and vary towards ontology (how to perceive reality), epistemology (constitution of acceptable knowledge) and axiology (role of values), which will be referred to in the following.
Based on the focus of the present study, examining consumer behavioral intention towards packaging-free products, the philosophy of critical realism have been chosen. Critical realism argues that humans do not necessarily see the real world as it is, instead reality is believed to be interpreted and filtered by the individual’s senses. By this, what the individual actually sees is affected by personal sensations and emotions, which are representations of what is real (Saunders et al, 2009). According to the ontology of realism, reality is an objective phenomenon independent of human beliefs and thoughts. However, adding to this, a critical realist also takes into account that social conditioning can affect interpretations. Further, in terms of axiology, the research will be kind of value laden biased of the researcher’s world views and cultural experiences (Saunders et al, 2009). From an epistemological view regarding what represents reasonable knowledge, critical realism just like direct realism, or even positivism, sees observable data as credible. Nevertheless, in contrast to positivism, critical realism also holds that observed data should be explained with regards to social contexts (Saunders et al., 2009). In other words, since the philosophy of critical realism believes that social conditions and other potential powerful factors cannot be controlled, they have to be accepted. This is also what distinguishes realism from positivism, in that positivism reflects natural science by finding law-like generalizations whereas critical realism research topic is a social phenomenon (Saunders et al., 2009), which the generation y consumer behavioral intention in the present study indeed is.

Moreover, the nature of critical realism involves that the social world is permanently changing as well as it consists of multiple levels which are interacting among each other (Saunders et al., 2009). In the following research we will study the customers intention which will be influenced on different levels for example through relevant others (SN). In addition, this individual’s intention within its predicting factors like attitude change over time and due to that cannot be law-like generalized.

Moreover, there is a higher relevance of realism for business and management research (Saunders et al., 2009). According to Bhaskar (1989), to understand a social behavioral phenomenon the management need to understand social structures impacting it. By this, the intention of purchase specific products can only be understood dependently of social factors involved (Dobson, 2002).
3.2 Research Approach

The next layer of the research onion refers to the research approach, which compromise the use of theory. It needs to be decide between an inductive and deductive approach.

In general, deductive relates to top-down reasoning from the more general to the more particular (Trochim, 2006). By this, it is based on previous theories and existing research in a broad perspective which design a research strategy through testing narrowed down hypothesizes. Using the inductive approach data would be collected first to develop theories and generalization as a result (Saunders et al., 2009).

In the following, the deductive approach has been applied to the study to examine factors impacting customer’s purchase intention. This is firstly caused by starting with looking into previous literature, specifically TPB applied to predict consumers behavioral intention. This has led to our research question. In regard to the particular research topic of consumers intention toward packaging-free food products among German generation y, specific hypothesizes are formed to find causal links between factors for instance the individuals attitude or SN and the behavioral purchase intention. Next, quantitative data, as one of the key characteristic of deduction, will be gathered and analyzed in order to test the theories and to deduct conclusions (Saunders et al., 2009). The data collection and interpretation in an objectively manner is another argument for the deductive approach (Saunders et al., 2009).

The goal of the chosen approach of finding correlations between the mentioned variables has to be highly-structured to achieve a high reliability (Saunders et al., 2009). This and a sufficient large sample size of German generation y consumers is acquired in order to statistically generalize the findings applicable to mainstream supermarkets.

3.3 Research Purpose

The purpose of the research deals with how the research questions are answered. Therefore, the research has the choice between one of the three types of purposes: exploratory, descriptive and explanatory (Saunders et al., 2009).

We, as the researchers of the present study, have decided for the explanatory purpose since exploratory consist of a deeper understanding and clarification of a specific problem and descriptive as the name implies, means to solely describe a particular problem or situation
Even though descriptive studies occasionally present an explanation by diagnosing differences and patterns between for instance competitors by determining market segments, solely descriptive nature of research does not generate immediately any kind of causality (Babin & Zikmund, 2016).

Generally speaking, explanatory defines and examines causal relationships between variables to explain the correlations among each other. This, in case of the study at hand, results into research of an explanatory nature caused by the purpose to explain causal relationships or correlations between independent variables such as EC and attitude as well as barriers and the dependent variable, the purchase intention (see Figure 2).

In addition, the key research statement in explanatory research are research hypotheses which are stated in chapter 2.2 and 2.3 above, in contrast to research questions used in descriptive and exploratory studies (Babin & Zikmund, 2016).

### 3.4 Research Strategy, Choices and Time Horizon

The next layer of the research onion is the research strategy. According to Saunders et al. (2009), the research strategy may be in form of an experiment, survey, case study, action research, grounded theory, ethnography, or archival analysis. Based on the nature of the research purpose, the research strategy applied for this thesis was a survey approach with the use of an online questionnaire, which is also commonly associated with explanatory research (Saunders et al., 2009). This technique is suitable because we can quickly collect a large amount of valuable data which is necessary in order to statistically test the proposed hypotheses with aid of SPSS. Besides, an online questionnaire eliminates the cost of execution in terms of printing and postage costs, which is of highly importance considering not only our limited financial resources as students but also the minor environmental impact. Moreover, with an online questionnaire we do not have to transcribe the collected data which decreases the risk of potential input-errors, which is a distinct advantage over paper-based surveys (Saunders et al., 2009). Last but not least, it is crucial to consider the need of the target population. The German generation y is tech-savvy and spent a significant amount of time on the internet (Bolton et al., 2013), which is why it can be assumed that they prefer and are perfectly comfortable with a web-based questionnaire. Another crucial component is a good survey design. Due to the greater variety of design formats such as videos, images, checkboxes etc., an online questionnaire might be more appealing to the generation y and result in higher response rates.
thus greater insights compared to more traditional methods. However, there are also drawbacks of this approach that need to be acknowledged. When using an online questionnaire there is no face-to-face interaction or trained interviewer at hand, which is why potentially unfamiliar terms cannot be explained and might be interpreted differently by respondents (Debois, 2016). Additionally, the online survey is prone to researcher error by poorly chosen distribution channels (Steber, 2016). However, we have decided to stick to the strategy of an online survey since the benefits outweigh the drawbacks. Nevertheless, we have been aware of these potential errors and specifically tried to combat these issue (chapter 3.5.1 and 3.7.2).

Furthermore, the research choice may be either quantitative, qualitative or a combination of both, often referred to multiple method, which further can be categorized into mixed-and multi-method. It can be argued, in order to offset the disadvantages of quantitative and qualitative methods, multiple methods are increasingly advocated (Saunders et al., 2009). Still, due to the scope of this thesis and in particular its time constraints the research choice has been a mono-method, using a quantitative methodology to collect, analyze, and summarize the data.

The time horizon choices outlined in the fifth layer of the research onion are cross-sectional and longitudinal. This study utilized a cross-sectional timing since the web-based questionnaire was only distributed once, for a period of two weeks - meaning the collected data is short-term and a “snapshot” taken at a given time (Neville, 2007).

### 3.5 Data Collection

In order to answer the research questions primary data was collected through a quantitative survey with a self-administered, structured online questionnaire (in German language). The questionnaire was designed through an online tool called Qualtrics, allowing to collect the data digitally and export it straight into SPSS. The link of the questionnaire was sent out to respondents on March 15th (2018) via various online platforms such as Facebook or WhatsApp but has been completed autonomously. The questionnaire was deactivated on March 29th (2018) at midnight thus, the data was collected in 14 days.
3.5.1 Survey Design

In order to increase the response-rate, it is highly important that respondents perceive the questionnaire as professional and trustworthy. This was reached by writing an introduction in the respondent’s native language including the purpose and a confidentiality statement in the beginning of the survey as well as by mentioning the university’s name. In addition, simple, clear and direct language was used to be sure that each question is easily understood and not answered randomly.

Another crucial part of the survey design is the appropriate order of the questionnaire. A logical flow results to high response rates (Sarstedt & Mooi, 2014). Screener or filter questions, here used as a prefixed question to capture the respondent’s familiarity with the topic at hand, are coming first. Next the key variables of the research, dependent and independent variables were placed, following a funnel approach to make the answering easier. Relevant demographics such as age, gender etc. have been placed at the end of the survey.

The main body of the questionnaire was made up of six sections in order to find clear and structured answers for the proposed research questions. Each construct, apart from the filter question and demographics, consisted of three closed-ended questions, which have been adapted from well-chosen validated sources (Table 1). These items were operationalized by utilizing a five-point Likert scale to give respondents a fixed set of choices to choose from where the anchor of 1 indicates “strongly agree” and 5 indicates “strongly disagree”. An odd numbered scale having a center was used because it allows for a neutral opinion, assuming that respondents would drop out when forced to a choice.

To enhance quality and minimize the risk of potential ambiguity a pilot-test among six participants was held. These six people meet the characteristics of the populations and were chosen based on our subjective judgement. After pilot-testing, some minor adjustments were made such as adding more options to the question of respondent’s education (secondary school I and II) as well as an indication about the estimated length of the questionnaire. As proposed by van-Teijlingen and Hundley (2001) participants of the pilot test were excluded in the main study to reduce potential bias.

Furthermore, to get as much insights as possible two quite different products from a dry and liquid category will be compared, assuming that this will lead to different results. In terms of the dry food category this research focuses on oats because they are commonly known for high
packaging waste such as having an inner plastic bag in addition to their outer packaging. By getting rid of both, packaging waste could be significantly decreased. Milk is the counterpart, in terms of the liquid category. The motivation for this lies in the fact that it used to be a packaging-free product in the past and most people can relate to it first when thinking about zero waste products in general. Lastly, another reason for choosing two food categories was to increase the validity by narrowing it down (chapter 3.7.2).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measurement</th>
<th>Source of Adaption</th>
</tr>
</thead>
</table>
| EC        | - I am worried about the worsening of the environment.  
- The environment is my major concern.  
- I often think about how the environment can be improved. | Lee, 2008 |
| Attitude  | - Purchasing packaging-free oats/milk is good.  
- Purchasing packaging-free oats/milk is beneficial.  
- Purchasing packaging-free oats/milk is positive. | Ajzen, 2002;  
Arvola et al., 2008 |
| Subjective Norms | - My family would advise me to purchase packaging-free oats/milk.  
- Most people I value would purchase packaging-free oats/milk.  
- My friends, who are important to me, think that I should purchase packaging-free oats/milk. | Ajzen, 2002;  
Arvola et al., 2008 |
| PBC       | - I have the financial resources to purchase packaging-free oats/milk.  
- Nothing would prevent me from purchasing packaging-free oats/milk if it is available.  
- If I wanted to, I could purchase packaging-free oats/milk. | Ajzen, 2002;  
Arvola et al., 2008;  
Han et al., 2010 |
| Barriers  | - It would hinder me to purchase packaging-free oats/milk because it is time consuming.  
- It would hinder me to purchase packaging-free oats/milk because it is of physical effort.  
- It would hinder me to purchase packaging-free oats/milk because it has a lack of information. | Steptoe et al., 1995;  
Authors of this study, 2018 |
| Intention | - I am willing to purchase packaging-free oats/milk if they would be available.  
- I will make an effort to purchase packaging-free oats/milk in the near future if they would be available.  
- I plan to purchase packaging-free oats/milk if they would be available. | Lee, 2008;  
Ajzen, 2002;  
Arvola et al., 2008 |

Table 1: Measurement
3.5.2 Sampling
In a perfect research set-up, a quantitative method would ideally approach a probability sampling, due to the possibility to generalize the results to the population and minimize sampling bias (Bryman & Bell, 2003; Uprichard, 2013). However, based on limited timely and financial resources, it is not feasible to make the questionnaire available to the whole German generation y. Therefore, this study used a combination of two non-probability sampling techniques to reach the target population. Non-probability sampling occurs when sampling units are not selected by chance but rather on one’s own personal judgement (Neville, 2007).

The respondents for this study were obtained based on self-selection. Even though, we lack a control over the sample it is least expensive and least time consuming compared to other sampling techniques. Belonging to the target population ourselves we tried to leverage our network and asked specific respondents to encourage other individuals to participate in the survey, which is also known as snowball sampling (Saunders et al., 2009). This helped us to broaden the network and proximity of the survey throughout Germany. Social media platforms such as Facebook and WhatsApp were used in order to recruit a more diverse range of respondents.

3.6 Data Analysis
As already mentioned, the questionnaire was designed through Qualtrics, which made it possible to directly download the quantitative data in its raw form into the statistics software SPSS. The data types were dichotomous, nominal and ordinal (Saunders et al., 2009). Before analyzing the data, it was cleaned and checked for errors like uncompleted responses etc. Furthermore, after assessing the reliability and internal consistency of each construct, descriptive statistics were run. Subsequently, a Pearson correlation analysis and a simple and multiple regression analysis have been performed in order to test the hypotheses introduced in the theoretical framework of this study. Further, differences among the food categories oats and milk have been identified. Finally, an independent sample t-test has been conducted in order to check whether there is a statistically significant difference in terms of gender and age.
3.7 Trustworthiness

3.7.1 Reliability
Reliability represents the consistency and checks whether similar results will be found with the same questionnaire in a different set-up for instance with dissimilar samples, at a different point of time (Saunders et al., 2009). To ensure the reliability of the variables EC, attitude, SN, PBC and barriers we carefully selected proper measurement scales. There are three ways to evaluate reliability: test-retest reliability, equivalent form reliability and finally internal consistency reliability. To get a methodological strength, we have utilized a statistical measure, namely Cronbach’s alpha to test the internal consistency of these measurement scales (the results can be found in chapter 4.2), which is also known to be the most common way. As suggested by Francis et al. (2004), to further obtain reliability, most constructs of the questionnaire at hand were measured by more than one item.

3.7.2 Validity
Internal validity refers to the extent whether the research is measuring what it is supposed to measure (Saunders et al., 2009). According to Cooper and Schindler (2003), valid research meets the following criteria: content validity, criterion-related validity, and construct validity. Content validity has been established with the use of a thorough literature review of previous TPB studies from which the measurement scales were deducted. Criterion-related validity is covered by the use of a correlation analysis. Last but not least, to prove construct validity reliability coefficients have been assessed.
To further enhance validity the questionnaire has been reviewed in terms of clarity and comprehensibility, since in quantitative research in particular the researcher has little influence whether the respondents understand the questionnaire correctly. To overcome this and to decrease the risk of potential errors, we wrote a proper introduction. Moreover, questions were not leading but were neutral and specific. In addition, as stated in the research design, the questionnaire was narrowed down to two food categories to guide the respondents further instead of confusing him/her with a too broad domain such as packaging-free food products in general.
3.7.3 Ethical

While conducting the research we have adhered ethical principles at any times, including the confidentiality and anonymity of respondents. Besides, respondents have been fully informed about the aim of the survey in advance and were given the opportunity to withdraw from the survey at any time. In general, the market research society (MRS) Code of Conduct was considered during this research, which can be found in the appendix (Appendix 1).
4 RESULTS

4.1 Cleaning Data

A total of 517 responses were collected using a self-administered, structured online-survey. Two filter questions were employed to make sure that the respondents qualify to be included in the analysis in terms of belonging to the target population. The first question asked whether the respondent has a German citizenship or lives in Germany. All respondents who denied this question were removed, respectively 15 cases. The second question asked about the age since generation y is the target population of this research. In total 51 cases were disqualified because they were either too young or too old. Furthermore, the average time to complete the survey takes around 7-8 minutes. Respondents who filled out the questionnaire too fast, namely in less than three minutes, were deleted leaving a usable sample size of 422 responses for the analysis.

Afterwards, the data set was screened for errors and missing values by running descriptive statistics for all numeric variables and frequencies for the categorical variables. No missing values have been found. Moreover, all values range within the minimum and maximum value of the respective scales. As no response falls outside the range of possible values it can be said that the data set is clearly free from errors.

4.2 Preliminary Analysis

Before running statistical tests, it is particularly important to check that several assumptions are met in order to allow for accurate results, which includes: the reliability of the scales, outliers, normality, linearity, homoscedasticity and independence of the residuals (Pallant, 2005).

To ensure reliability of the scales, Cronbach’s alpha values have been assessed (Sekaran, 2003). As it can be seen from Table 2, the values range from 0.772 to 0.928. Pallant (2005) and Nunnally (1978) state that results above 0.7 are considered to be ideal. Nevertheless, other studies such as of Petrick and Backman (2002) point out that a Cronbach’s alpha of 0.6 could also be considered to be acceptable. However, the results imply that all constructs of this study have a high reliability and internal consistency.
To identify potential multivariate outliers, the Mahalanobis distance analysis was conducted, because outliers have a disproportionate impact on statistical conclusions which in turn might result in misleading interpretations (Hair, Black, Babin, & Anderson, 2010). According to Tabachnick and Fidell, (2001) the critical value of 20.52 should not be exceeded, which is determined by using a chi-square table with five independent variables as degrees of freedom. In our data set no outlying cases were detected that showed a Mahalanobis distance greater than the critical value (Appendix 5).

Normality refers to the normal distribution of the data (Pallant, 2005), which has been checked by examining the normal probability plot between the independent and dependent variables. As illustrated in Figure 4 and Figure 5 the points on both normal probability plots form a rather straight line from the bottom left to the top right suggesting no major deviations from normality.

![Figure 4: Normal Probability Plot of Environmental Concern on Attitude](image-url)
Linearity and homoscedasticity were assessed by examining the scatterplots between the independent and dependent variables. As it can be seen from Figure 6 and Figure 7 the plots show satisfactory results: first, there is no evidence of non-linearity and second, the residuals are rectangularly distributed with most of the scores being located in the center along the zero point. Therefore, the assumptions of linearity and homoscedasticity are not violated.
The independence of the residuals was assessed by using the Durbin–Watson test. Following Wooldridge (2009), the Durbin-Watson value should ideally be around 2. In our case, the data shows a value of 1.907 which is safely close to the reference value, thus indicating that the residuals are uncorrelated hence independent (Appendix 7 & 8).

Summing these preliminary analysis findings up, all results imply that the assumptions for conducting further statistical tests are satisfied.

### 4.3 Respondents’ Demographics

As mentioned, 422 cases were usable for our analysis. Among these total respondents, 341 (80.8%) were female, and 81 (19.2%) were male (Table 3). In addition, the age of the majority of respondents (69.8%) were of 23 to 32 years, 12.9% were between 18 and 22 years and 17.3% were aged of 33 till 38. This can be traced back to the fact of a snowballing sampling consisting of our leveraged network of our friends and acquaintances of similar age. Further, most respondents were well educated with a bachelor’s degree (33.6%), followed by relatively high educational level such as the high school degree (28%) or a master’s degree (17.5%). In terms of the income, the majority of the respondents earned between 1,000€-3,000€ (56.4%) and further, 32.2% had an income of less than 1,000€, whereas only 11.3% earned more than 3,000€.
As the gender distribution consisted of more women than men (81% to 19%, respectively), it is a disproportion according to Statista (2016), which reported that the German generation y consists of 49.1% women and 50.9% men. Accordingly, it needs to be acknowledged that the sample may not be that representable for the men in general but more valid for the woman.

<table>
<thead>
<tr>
<th>Demographic Item</th>
<th>Description</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td></td>
<td>Male</td>
<td>81</td>
<td>19.2</td>
</tr>
<tr>
<td>Age</td>
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<td>0.7</td>
</tr>
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<td>32.2</td>
</tr>
<tr>
<td></td>
<td>1,000 € - 3,000 €</td>
<td>238</td>
<td>56.4</td>
</tr>
<tr>
<td></td>
<td>3,000 € - 5,000 €</td>
<td>36</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>Above 5,000 €</td>
<td>12</td>
<td>2.8</td>
</tr>
</tbody>
</table>

*Table 3: Respondents’ Profile*
4.4 Descriptive Statistics

For each statement of this study’s variables, a mean and a standard deviation (SD) were calculated and summarized in Table 4. The statements that indicated one research variable were used to determine a total mean score (for instance the three attitude statements) towards packing-free milk and oats each form the total attitude mean). As mentioned in the survey design (chapter 3.5.1), a five-point Likert scale was utilized with the anchor of 1 indicating “strongly agree” and 5 indicating “strongly disagree”.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am worried about the worsening of the environment.</td>
<td>1.63</td>
<td>0.743</td>
</tr>
<tr>
<td>The environment is my major concern.</td>
<td>1.84</td>
<td>0.800</td>
</tr>
<tr>
<td>I often think about how the environment can be improved.</td>
<td>2.14</td>
<td>0.951</td>
</tr>
<tr>
<td><strong>EC Total</strong></td>
<td><strong>1.87</strong></td>
<td><strong>0.751</strong></td>
</tr>
<tr>
<td>Purchasing packaging-free oats is good.</td>
<td>1.63</td>
<td>0.817</td>
</tr>
<tr>
<td>Purchasing packaging-free milk is good.</td>
<td>2.05</td>
<td>1.105</td>
</tr>
<tr>
<td>Purchasing packaging-free oats is beneficial.</td>
<td>1.97</td>
<td>1.025</td>
</tr>
<tr>
<td>Purchasing packaging-free milk is beneficial.</td>
<td>2.32</td>
<td>1.182</td>
</tr>
<tr>
<td>Purchasing packaging-free oats is positive.</td>
<td>1.62</td>
<td>0.826</td>
</tr>
<tr>
<td>Purchasing packaging-free milk is positive.</td>
<td>1.95</td>
<td>1.070</td>
</tr>
<tr>
<td><strong>Attitude Total</strong></td>
<td><strong>1.92</strong></td>
<td><strong>0.849</strong></td>
</tr>
<tr>
<td>My family would advise me to purchase packaging-free oats.</td>
<td>3.01</td>
<td>1.055</td>
</tr>
<tr>
<td>My family would advise me to purchase packaging-free milk.</td>
<td>3.09</td>
<td>1.078</td>
</tr>
<tr>
<td>Most people I value would purchase packaging-free oats.</td>
<td>2.94</td>
<td>0.865</td>
</tr>
<tr>
<td>Most people I value would purchase packaging-free milk.</td>
<td>3.07</td>
<td>0.869</td>
</tr>
<tr>
<td>My friends, who are important to me, think that I should buy packaging-free oats.</td>
<td>2.99</td>
<td>0.940</td>
</tr>
<tr>
<td>My friends, who are important to me, think that I should buy packaging-free milk.</td>
<td>3.11</td>
<td>0.909</td>
</tr>
<tr>
<td><strong>SN Total</strong></td>
<td><strong>3.03</strong></td>
<td><strong>0.751</strong></td>
</tr>
<tr>
<td>I have the financial resources to purchasing packaging-free oats.</td>
<td>2.11</td>
<td>0.956</td>
</tr>
<tr>
<td>I have the financial resources to purchasing packaging-free milk.</td>
<td>2.04</td>
<td>0.960</td>
</tr>
<tr>
<td>Nothing would prevent me from purchasing packaging-free oats if it is available.</td>
<td>2.41</td>
<td>1.137</td>
</tr>
<tr>
<td>Nothing would prevent me from purchasing packaging-free milk if it is available.</td>
<td>2.59</td>
<td>1.211</td>
</tr>
<tr>
<td>If I wanted to, I could purchase packaging-free oats.</td>
<td>2.51</td>
<td>1.179</td>
</tr>
<tr>
<td>If I wanted to, I could purchase packaging-free milk.</td>
<td>2.56</td>
<td>1.201</td>
</tr>
<tr>
<td><strong>PBC Total</strong></td>
<td><strong>2.37</strong></td>
<td><strong>0.760</strong></td>
</tr>
<tr>
<td>It would hinder me to purchase packaging-free oats because it is time consuming.</td>
<td>3.36</td>
<td>1.131</td>
</tr>
<tr>
<td>It would hinder me to purchase packaging-free milk because it is time consuming.</td>
<td>3.28</td>
<td>1.198</td>
</tr>
<tr>
<td>It would hinder me to purchase packaging-free oats because it is of physical effort.</td>
<td>3.95</td>
<td>0.944</td>
</tr>
<tr>
<td>It would hinder me to purchase packaging-free milk because it is of physical effort.</td>
<td>3.80</td>
<td>1.100</td>
</tr>
</tbody>
</table>
It would hinder me to purchase packaging-free oats due its lack of information. 4.01 1.125
It would hinder me to purchase packaging-free milk due its lack of information. 3.70 1.278

<table>
<thead>
<tr>
<th>Barriers Total</th>
<th>3.68</th>
<th>0.840</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am willing to purchase packaging-free oats if they would be available.</td>
<td>2.28</td>
<td>1.104</td>
</tr>
<tr>
<td>I am willing to purchase packaging-free milk if they would be available.</td>
<td>2.72</td>
<td>1.303</td>
</tr>
<tr>
<td>I will make an effort to purchase packaging-free oats in the near future.</td>
<td>2.22</td>
<td>1.065</td>
</tr>
<tr>
<td>I will make an effort to purchase packaging-free milk in the near future.</td>
<td>2.63</td>
<td>1.299</td>
</tr>
<tr>
<td>I plan to purchase packaging-free oats if they would be available.</td>
<td>2.40</td>
<td>1.151</td>
</tr>
<tr>
<td>I plan to purchase packaging-free milk if they would be available.</td>
<td>2.79</td>
<td>1.324</td>
</tr>
</tbody>
</table>

| Intention Total | 2.50 | 1.039 |

Table 4: Means and Standard Deviations

From Table 4 it can be seen that the total mean of EC is representing that the respondents agree to be environmental concerned (1.87). Almost all means, besides the variable SN and barriers, were below 3, most of them revolve around 2 demonstrating a high level of agreement with the study’s questionnaires. The lowest total mean value is the attitude (1.92), indicating that the respondents attitude is favorable towards packaging-free products. The total means of PBC (2.37) and Intention (2.51) show that the respondents intent to purchase packaging-free products and perceive to have control above it. However, the total SN towards packaging-free products (3.03) was slightly above 3 and therefore neutral about the influence of SN. In terms of the newly added factor barriers to the main TPB construct, the total mean of 3.68 represents that the respondents disagree that the asked barriers do hinder the individual to purchase such products. In this barrier construct, the statement with the highest mean score was the information loss (4.01) for packaging-free oats and for milk the physical effort (3.80). These are perceived as not hindering the respondents to purchase those packaging-free products. In contrast, the lowest means for packaging-free oats and milk was both the time-consuming statement (oats=3.36, milk= 3.28), indicating that the respondents are indecisive about this factor with a tendency to disagree. That is why time efforts are rather hindering the respondents to purchase such products contrary to the other two barriers. Remarkably, overall it can be stated that the statement mean scores were almost always slightly lower for the packaging-free oats compared to the milk, besides for the factor barriers, hence the respondents tend to agree more in the oats category.

Almost all SD of the total variables were small with a value below 1.0 (Pallant, 2005), besides the total Intention. This small SD signals that the single answers were distributed on average less than one point around the mean and is thus a good predictor. Nevertheless, according to
Pallant (2005), it is usual on a 5-point Likert scale that SDs are spread around the value 1.0 and is hence still appropriate to predict. But as higher the SD gets, the more it shows that the response about the factor differ more in contrast to other variables (for instance the total purchase intention SD of 1.040 is minimal higher than 1.0 which represents that responses for this variable were not as simple to predict compared to other variables).

4.5 Hypotheses Testing

4.5.1 Correlation Analysis

The Pearson correlation analysis is used to identify the strength of relationships between two variables and indicates a positive or negative direction (Pallant, 2005). To interpret the strength of a relationship only the absolute value size without the sign in front matters: as closer as it gets to -1 or 1, the better a variable can be defined by precisely knowing the value of the other variable (Pallant, 2005).

As mentioned in chapter 4.2, preliminary analyses have been conducted to ensure no kind of violation of the assumptions of the reliability of the scales, outliers, normality, linearity, homoscedasticity and independence of the residuals.

As the first step interpreting the Pearson correlation results, it had to be assured that N (the number of cases), which is 422 in our study, is right (Appendix 6).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>0.570**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>0.267**</td>
<td>0.394**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>0.309**</td>
<td>0.398**</td>
<td>0.248**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barriers</td>
<td>-0.444**</td>
<td>-0.574**</td>
<td>-0.304**</td>
<td>-0.454**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>0.535**</td>
<td>0.658**</td>
<td>0.379**</td>
<td>0.546**</td>
<td>-0.578**</td>
<td>1</td>
</tr>
</tbody>
</table>

*Table 5: Pearson Correlation*

** Significant at p < 0.01

Overall, almost all of the correlation results are positive and range from -0.578 to 0.658 (Table 5), displaying medium to large correlations (Cohen, 1988). In particular, the correlation between the independent variable EC and dependent variable attitude is large (0.570) and therefore, a quite strong relationship between the factor EC and attitude is suggested. A positive sign out the front means a positive correlation, which in this case refers to that if EC increases,
so does attitude. The original construct of the TPB (attitude, SN and PBC) as well as the added variable barriers correlated with intention, supporting the high influence of intention to purchase packaging-free products. However, SN is showing in contrast an only medium relationship (0.379) with the purchase intention. Beyond that, the strongest relationship has been found with attitude (0.658), followed by barriers (-0.578) and PBC (0.546). Looking at the strong negative correlation of barriers (-0.584), this indicates that the intention to purchase packaging free products increases when the barriers hindering the individual to do so decrease. These correlations supported all the proposed hypotheses (H1a- H4) as the results above showed significant relationships at a 0.01 level (2-tailed) (Appendix 6).

As illustrated in Table 5, there are notable significant relationships of the independent variables among each other (e.g. attitude showed a strong correlation with barriers (0.583)). However, these do not pass the critical value of 0.7 (Pallant, 2005), therefore were not of concern for our study.

However, drawing final conclusions after only conducting the Pearson correlations could be challenging, as the analysis of the regression might present varying results (Field, 2013).

4.5.2 Simple Regression

A simple linear regression explores the correlation of one independent variables on one dependent variable (Blokhin, n.d.). Therefore, it can predict the relationship of the independent variable EC on the dependent variable attitude. To do so, it was necessary that all the assumptions were not violated as stated in the preliminary analysis (chapter 4.2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Environmental Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized β</td>
<td>0.570</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.323</td>
</tr>
</tbody>
</table>

*Table 6: Simple Regression Analysis*

The adjusted R² of the regression analysis of 0.323 (Table 6), indicates the degree of variance of the dependent variable and thus reflects that the factor EC explains 32.3% of the variance in the German generation y attitude. Since the statistical significance is achieved (Sig.= 0.000, \(p<0.0005\)), the null hypothesis can be rejected. Further, Hypothesis H1a can be supported, stating that environmental concern will positively impact the consumer’s attitude towards
packaging-free products, as it was found significant with a positive beta value of 0.570. This finding concurs with the result of the Pearson correlation.

4.5.3 Multiple Regression

A multiple regression is a measurement which can be applied to address various research questions while investigating the correlation of (a set of) independent variables on one dependent variable (Pallant, 2005). For instance, how well the chosen set of variables in this study is able to predict the purchase intention of packaging-free products and which of these variables is the best predictor of this particular output.

As the assumptions were not violated in the preliminary analysis (chapter 4.2), it was necessary that further assumptions were fulfilled before conducting a multiple regression analysis. Since in total 4 independent variables were investigated on the dependent variable intention, according to Tabachnick and Fidell (2001), a minimum sample size of 86 was required (N > 50 + 8m (m= number of independent variables). Based on 422 cases, this assumption was adequately fulfilled.

Before the multiple regression has been performed between the independent variables attitude, SN, PBC and barriers and the dependent variable Intention, it had to be checked that the multicollinearity assumptions have not been violated. An indicator for multicollinearity was the relatively high correlation of the two independent variables attitude and barriers (-0.574), why we had to look at the tolerance and variance inflation factor (VIF) values. As the smallest tolerance value is 0.602, which is well above the critical value of 0.10, it can be said that multicollinearity assumption has not been violated. This is also supported by the VIF value since the highest value was 1.661 (Appendix 8). A VIF value greater than 10 would be an indicator of an existing multicollinearity (Marquardt, 1980).

Hence, all the requirements for conducting reliable regression analyses were fulfilled.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Attitude</th>
<th>SN</th>
<th>PBC</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized β</td>
<td>0.400</td>
<td>0.094</td>
<td>0.275</td>
<td>-0.195</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
<td>0.009</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.557</td>
<td>0.557</td>
<td>0.557</td>
<td>0.557</td>
</tr>
</tbody>
</table>

Table 7: Multiple Regression Analysis
The adjusted $R^2$ of the main TPB construct extended through the added variable barriers of 0.557 means that the factors attitude, SN, PBC and barriers impact 55.7% of the German generation y’s purchase intention towards packaging-free products whereas the original TPB construct has only a variance of 53.5% (Appendix 8). In terms of the extended construct, it can be seen in Table 7, that attitude (0.400) contributes the strongest and positively in predicting the purchase intention towards packaging-free products and is therefore the most relevant factor towards the intention. Hence, it can be stated, the higher the attitude towards packaging-free products is, the more likely the consumer’s purchase intention will be (Pallant, 2005). Further, it is significant ($p<0.0005$) and by this, supports Hypothesis 1.

The second hypothesis assumed that SN are positively associated to the consumer’s purchase intention. The findings of the regression represent that it positively ($\beta = 0.094$) impact the consumers’ purchase intention but since there is no significance, Hypothesis 2 has to be rejected.

The third hypothesis stated that PBC is positively influencing the purchase intention towards packaging-free products in Germany. Since the beta value (0.275) is the second strongest right after attitude and is impacting significantly intention ($p<0.0005$), the third hypothesis is supported.

The only negative beta value is barriers (-0.195) referring to the hypothesis 4. Since this hypothesis is saying that that barriers will negatively influence the purchase intention towards packaging-free products, it is necessary that the relationship has to be negative. By this, the more likely a consumer would be hindered by those barriers to purchase packaging-free products, the lower the purchase intention will be. In addition, it is significant ($p<0.0005$). Thus, hypothesis 4 is confirmed.

The findings of the multiple regression concur all with the result of the Pearson correlation. Table 8 is summarizing the tested hypotheses.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{1a}$</td>
<td>Environmental concern will positively influence German generation y’s attitude towards packaging-free product.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_1$</td>
<td>Attitude will positively influence German generation y’s purchase intention towards packaging-free products.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_2$</td>
<td>Subjective norms will positively influence German generation y’s purchase intention towards packaging-free products.</td>
<td>Rejected</td>
</tr>
<tr>
<td>$H_3$</td>
<td>PBC will positively influence German generation y’s purchase intention towards packaging-free products.</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_4$</td>
<td>Barriers will negatively influence German generation y’s purchase intention towards packaging-free products.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

*Table 8: Summary of Hypothesis Testing*
4.6 Additional Tests

4.6.1 Differences between Packaging-free Oats and Milk

Within this study the simple and multiple regression was also used to investigate the difference between packaging-free oats and milk products (Table 9 & 10).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Environmental Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td></td>
</tr>
<tr>
<td>Standardized β</td>
<td>0.567</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.320</td>
</tr>
<tr>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>Standardized β</td>
<td>0.487</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.235</td>
</tr>
</tbody>
</table>

Table 9: Simple Regression Analysis Oats vs. Milk

<table>
<thead>
<tr>
<th>Variable</th>
<th>Attitude</th>
<th>SN</th>
<th>PBC</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized β</td>
<td>0.359</td>
<td>0.091</td>
<td>0.247</td>
<td>-0.219</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
<td>0.018</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.463</td>
<td>0.463</td>
<td>0.463</td>
<td>0.463</td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized β</td>
<td>0.386</td>
<td>0.077</td>
<td>0.313</td>
<td>-0.187</td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
<td>0.035</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.575</td>
<td>0.575</td>
<td>0.575</td>
<td>0.575</td>
</tr>
</tbody>
</table>

Table 10: Multiple Regression Analysis Oats vs. Milk

Overall, in more than the half of the occasions the variables in the packaging-free oats (PFO) category are slightly higher than in the packaging-free milk (PFM) category (Table 9).

In terms of the PFO, the factor EC impact 32% of the German generation’s attitude, whereas it is only 23.5% for the PFM. The beta value is also higher (PFO= 0.567, PFM= 0.487). Interestingly, the factors attitude, SN, PBC and barriers influence 57.5% of the PFM category consumer’s purchase intention compared to 46.3% in the PFO category.
In addition, the order of the strength impact on the purchase intention is in both categories the same: the strongest impact made attitude (PFO=0.386, PFM=0.359), followed by PBC (PFO=0.313, PFM=0.274), barriers (PFO=-0.187, PFM=-0.219), and SN (PFO=0.077, PFM=0.091). As in the total multiple regression analysis, SN is again very weak, and barriers are having a negative beta value. However, it is notable, that also in this case the values of SN’s significance are too high (p<0.0005) and therefore it does not contribute significantly and uniquely to the prediction of the dependent variable purchase intention (Table 9 & 10) (Pallant, 2005). Otherwise, all the other findings are significant.

4.6.2 Gender Differences
As illustrated in Table 10 an independent sample t-test has been assessed to see whether there is a statistical significant difference between the means and standard deviations of females and males concerning their attitude and intention to purchase packaging-free products. These variables have been chosen because attitude contributes the strongest in predicting the purchase intention towards packaging-free products and is therefore the most relevant factor towards the dependent variable intention.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Female</th>
<th>Male</th>
<th>Mean Diff.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td>-0.55</td>
<td>0.000</td>
</tr>
<tr>
<td>Intention</td>
<td></td>
<td></td>
<td>-0.61</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 11: Independent Sample T-Test on Gender

With regard to attitude, the sig. level in Levene’ Test is above 0.05, which is why the top row will be reported, assuming that the variances are equal (Appendix 10). Furthermore, the p-value is less than 0.05 implying that there is a statistically significant difference in the mean scores (Table 10). It is notable, that the mean for female (1.82) is lower than for men (2.37), showing that their attitude towards packaging-free products is higher and more favorable compared to men, whose, nevertheless, attitude is positive as well.
In terms of the intention to purchase packaging-free products, the sig. level in Levene’ Test is above 0.05, which is why the top row will be reported, assuming that the variances are equal (Appendix 10). Furthermore, the p-value is less than 0.05 implying that there is a statistically significant difference in the mean scores (Table 11). The difference between the means is equal 0.61, whereas female have an average score of 2.39 and men score 3.00. This indicates, that women are more likely to purchase packaging-free products, contrary to men who are clearly indecisive.

On average, the standard deviation for both, female and male, are about the same and around 1.0, indicating that the responses do not differ from the mean excessively.

4.6.3 Age Differences
A further independent t-test has been assessed to see whether there is a statistical significant difference between the means and standard deviations of young (≥ 1989) and old (≤ 1988) German generation y’s (Singal, 2017) concerning their attitude and intention to purchase packaging-free products (Table 12). Again, these variables have been chosen because attitude contributes the strongest in explaining the purchase intention towards packaging-free products and is therefore the most relevant factor towards the dependent variable intention.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Young Gen. Y</th>
<th>Old Gen. Y</th>
<th>Mean Diff.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>2.00 0.88</td>
<td>1.80 0.79</td>
<td>- 0.21</td>
<td>0.013</td>
</tr>
<tr>
<td>Intention</td>
<td>2.61 1.07</td>
<td>2.35 0.97</td>
<td>- 0.26</td>
<td>0.011</td>
</tr>
</tbody>
</table>

Table 12: Independent Sample T-Test on Age

With regard to attitude the sig. level in Levene’ Test is above 0.05, which is why we can interpret the top row, assuming that the variances are equal (Appendix 10). Furthermore, the p-value is less than 0.05 implying that there is a statistically significant difference in the mean scores (Table 12). Old generation y scored lower (1.80) on attitude than young generation y (2.00), showing that their attitude towards packaging-free products is more favorable compared to younger ones, whose, nevertheless, attitude is positive as well.
In terms of the intention to purchase packaging-free products, the sig. level in Levene’ Test is above 0.05, which is why we can interpret the top row, assuming that the variances are equal (Appendix 10). Furthermore, the p-value is less than 0.05 implying that there is a statistically significant difference in the mean scores (Table 12). The difference between the means is equal 0.26, whereas young generation y has an average score of 2.61 and old generation y scores 2.35. This indicates, that older generation y respondents are more likely to purchase packaging-free products than younger ones. On average, the standard deviation for both, young and old, are about the same and around 1.0, indicating that the responses do not differ from the mean remarkably.
5 DISCUSSION

5.1 The Proposed Model

In this study, key factors determining consumers’ purchase intention towards packaging-free products were identified and beyond that extended with additional predictors, namely EC and barriers, as new factors to the TPB framework to make it suitable for the German generation y context.

![Figure 8: The Tested Conceptual Research Model](image)

Values are standardized coefficients (Beta)

Overall, the results demonstrated the explanatory power of the TPB model adjusted by two factors to predict the consumers’ purchase intention. However, SN did not successfully account to the proposed model, whereas barriers and EC notably did. Consequently, it was shown that the extended model contributed effectively to a statistically significant proportion to predict the German generation y’s purchase intention (with a variance of 55.7%), as pictured in Figure 8. This higher variance compared to the total variance of the original TPB framework (attitude, SN, PBC) of 53.5% supports the inclusion of the two newly added factors enhancing the predictive power of the extended model. In other words, the adjusted TPB model is of a better fit explaining the purchase intention towards packaging-free products than the original TPB model.
5.2 The Relationship among the Variables

5.2.1 The Relationship between Environmental Concern and Attitude

According to the descriptive statistics, the respondents of this study are highly environmental concerned. Further, the relationship of EC, as one of the new factors added to the TPB model in this study, and attitude was proven positive and strong. Thereby, EC has a direct positive influence on German generation y’s attitude towards packaging-free products, supporting Hypotheses 1a. Nevertheless, the rather low adjusted R2 of the regression analysis shows that the EC explains only 32.3% of the variance in the German generation y attitude indicating that there has to be a minimum of for instance one other quite strong factor or several other impacting the attitude. As EC is a determinant of attitude, it does affect the purchase intention indirectly: environmental beliefs and consciousness form the consumer’s attitude which is consequently transferred into intention since attitude is a predictor of it (H1). This finding appears to validate several studies about environmentally friendly behavior arguing EC as one of the strongest antecedents of attitude towards pro environmental products and purchase willingness (Mostafa, 2009; Paul et al., 2016; Yadav & Pathak, 2016). A possible explanation might be that generation y feels responsible to personally protect the environment by for instance prevent consuming products, which ecologically damage (Jaiswal & Kant, 2018). This generation is aware that environmental problems need to be faced and are willing to make the world a better place through their daily doings (Patel, 2017).

According to Tregear et al. (1994), individuals who are highly involved in green behavior are more likely to react positively about pro-environmental activities, which might relate to the respondents EC. The findings of high level of EC proves the literature right that this “born green”-generation, growing up in times where environmental consciousness turned into a norm, is shifting to greener attitudes and behavior (Rogers, 2013). This presence of high environmental consciousness is also proven in the latest representative environmental study among Germans (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit & Umweltbundesamt, 2017). Even though the willingness is high, it is claimed that there is a gap between the German generation y not acting that pro-environmental friendly as they apparently aim to (Röhlig, 2017).
5.2.2 The Relationship between Attitude and Intention

According to the frequency analysis, the general consumers’ attitude is favorable towards packaging-free products. Further, looking at the correlation and multiple regression results, Hypothesis 1 can be fully supported since the findings demonstrated a significant positive and high relationship between attitude and consumers’ purchase intention. Consequently, the more favorable the attitude towards packaging-free products is, the more likely the person intends to purchase it. This corresponded with the TPB theory, stating that a positive attitude toward a certain behavior influences the intention to perform such (Ajzen, 2002). Further, it is in line with prior studies confirming the impact of attitude on intention towards organic products (Scalco et al., 2017; Sparks & Shepherd, 1992), the environment (Arvola et al., 2008), the packaging domain (Birgelen et al., 2009) and the recycling behavior (Meneses & Palacio, 2005).

Moreover, as illustrated in Figure 8 (standardized coefficients (Beta)), the findings demonstrated that attitude is the highest predictor towards the individual purchase intention, explaining that the decision of the German generation y whether to buy packaging-free products is mainly guided by their attitude. This corresponds with the above-mentioned researchers (Arvola et al., 2008; Scalco et al., 2017; Sparks & Shepherd, 1992) stating in fact the highest importance of attitude among the factors on the behavioral intention.

Further, attitude’s crucial role predicting the purchase intention is successfully proven among other studies, however the strength of the correlation between attitude and purchase intention ranges from weak to strong. Our result confirmed the findings of Al-Swidi et al. (2014) (r=0.80) and declined the weak correlation (Guido et al., 2010; Scalco et al., 2017) by showing a high correlation among those two factors (r=0.66). This outcome might be explained by the cultural context. Since Germany belongs to an individualistic culture (Hofstede, Hofstede, & Minkov, 2010), the individuals perceive themselves as independent of collectives and autonomous by prioritizing their individual goals (Kacen & Lee, 2002). The researchers Van Hooft, Born, Taris and Van der Flier (2006) stated, that the intention in such particular cultures is predominantly driven by their personal attitude rather than by any other factors of the TPB. This is in line with our finding that the respondents’ purchase intention of packaging-free products is mostly impacted by their attitude.
5.2.3 The Relationship between Subjective Norms and Intention

The next factor of the extended TPB construct refers to SN, which were expected to impact positively the purchase intention towards packaging-free products, portraying the importance of significant others such as social surroundings motivating the consumer to purchase the mentioned products. As opposed to these expectations, the proposed correlation was not confirmed, thus Hypothesis 2 is declined. This result indicates that SN is not a predictor of the German generation y’s purchase intention. This implies that the perception of social pressure about what relevant others are thinking and expecting of that individual does not impact the intention to purchase packaging-free.

As stated in the literature review, the efficacy of SN explaining consumers intention is debated. Our finding, that SN is a non-significant predictor of the purchase intention, is in line with many studies not considering SN as a variable at all (Armitage & Conner, 2001; Sparks et al., 1995), unlike the relationship between SN and intention had been identified as the weakest by prior research (Blanchard et al., 2009; Honkanen et al., 2005) or even as a very important predictor of the purchase intention (Dean et al., 2012; Ha & Janda, 2012; Kumar, 2012). These variations about the predictive power of SN might be caused by cultural discrepancies in terms of collectivism and individualism as already mentioned above. Some of the studies were performed in collectivistic cultures, for instance South Korea (Ha & Janda, 2012), in which SN is frequently determined as the highest intention predictor since opinions and expectations of relevant others within a group and the pressure to achieve conformity with it are really high (Hofstede et al., 2010). In comparison, in individualistic cultures, such as in this study, consumers see themselves as independent by following their personal goals, meaning that their intention is mostly driven by their individual attitude rather than SN.

Further, the consumer might feel that approval of their social surroundings is irrelevant for purchasing packaging-free products caused by the possibility that those social surroundings are not fully aware of the benefits of adopting such packaging-free purchase behavior. This lack of experience and not fully being aware of the benefits among the respondents might explain this outcome.

Nevertheless, this finding is contrary to the fact, that generation y is generally being influenced by others and trust recommendations by for instance digital influencer more than any generation before them (Join, n.d.).
5.2.4 The Relationship between PBC and Intention
In terms of the factor PBC, the low mean described that the respondents see themselves as capable and perceive sufficient control about purchasing packaging-free products. With regard to the results of the multiple regression, the positive and high correlation between PBC and intention indicates PBC as a predictor of the purchase intention confirming Hypothesis 3. This finding means that consumers who perceive behavioral control of for instance the price and the availability of the packaging-free products, subsequently show a high intention to purchase it. Moreover, the results are consistent with previous literature arguing that PBC is positively related to intention in different contexts such as eco-friendly behavior (Dowd & Burke, 2013; Moser, 2015; Robinson & Smith, 2002; Tonglet et al., 2004).
A possible explanation for this result might be that respondents have the necessary resources to purchase packaging-free products as stated in the descriptive analysis. Since this concept of packaging-free products in mainstream grocery stores is not widely established yet, no particular prices were stated in the study’s survey. Further, the finding could be explained by the fact that the survey covered low engagement products i.e. oats and milk in a regular grocery store, which could be assumed to be higher priced than the regular products but still not too overpriced. Some respondents might know how much packaging-free products cost in a zero-waste supermarket, so they might have related the survey questionnaire to those values. Another aspect to consider is that research about green products discovered that a premium price was perceived as less important and consumers were not as price sensitive as overall expected referring to the purchase behavior (Chekima, Wafa, Igau, Chekima, & Sondoh, 2016). In addition, generation y is showing lately an enhanced interest across various pro-environmental dimensions (Rogers, 2013): they are most willing to pay more for sustainable product offerings (Nielson, 2015). Further, as previously stated, consumers, who are being environmental conscious and intent to act pro environmental, are willing more to pay extra as their sensitivity towards premium prices is lower (Laroche, Bergeron, & Barbaro-Forleo, 2001).
Concerning availability as another components of PBC, it was stated in the survey that the respondents should assume that those packaging-free products were already available in any regular grocery store. Consequently, the respondents perceived it as quite easy to purchase it. Additionally, this finding could also be due to the fact, that in general green products are becoming more effortless and widely available in regular supermarkets (Bray, Johns & Kilburn, 2011) and German mainstream discounters (Handelsblatt, 2016), which the respondents might related to while completing the study survey.
5.2.5 The Relationship between Barriers and Intention

With regard to the newly added factor barriers to the main TPB construct, hypothesis 4 is confirmed since the correlation between barriers and intention is strong and negative. Therefore, barriers are a negative predictor of the purchase intention towards packaging-free products. Remarkably, barriers were found the second main driver and had a stronger effect in predicting intention than one of the original factors namely PBC. Interestingly, it has to be acknowledged, that in our studies sample the findings of the descriptive analysis show a rather disagreement that the asked barriers do hinder the individual to purchase. Consequently, the asked barriers might not be that hard to overcome by the respondents.

Notably, the barrier of time-consuming effort of purchasing packaging-free products is the only one not to overcome that easily. This can be due the point that generation y portrays a convenience society (Frumkin, 2015), whereas they value that everything works without any big hassle: simple and quick with minimal efforts. This is line with the stated findings of Honkanen and Frewer (2009) and Steptoe et al. (1995). By that, it seems that generation y does not want to plan when and where to do grocery. This might be challenging since containers or jars need to be brought with to purchase in the store if those will not always be bought or if possible rented in the store. Due to this extra effort, the consumer might feel limited and hence it might influence their purchase intention negatively.

With regard to the physical efforts as a further studied barrier, there is a slight difference between the categories milk and oats saying that the respondents in general agree less compared to oats but however, it can be seen that this barrier do not hinder the respondents to purchase packaging-free. This slight distinction might be related to the difference between dry food (oats) and liquid food (milk) categories. Since particularly liquid food seems to be of a higher effort to transport from the grocery store home (for instance the container needs to be leak-proof and cannot be a simple cloth bag like for oats, which therefore might be heavier).

Finally, the third component of barriers relates to information loss since product information on the package are missing for the consumer back home. As shown in the descriptive statistics, it is also not seen as a barrier by the respondents. It can range in general from for instance the nutrition table, cooking instructions or any kind of inspiration, which will be missing since the products are stored in customer’s owned containers. Since for generation y a healthy lifestyle and consequently nutrition plays an important role (Mittag, 2012), the missing nutrition table might cause the highest impact among those examples.

Overall, the findings of the low perceived barriers by the respondents might be caused by the lack of experience purchasing such packaging-free products in a mainstream grocery store.
Considering that generation y is portrayed as a convenience society linked with the finding that barriers are a negative predictor of purchase intention, it was expected that barriers would hinder the respondents more.

5.3 Differences

Oats and Milk
The findings of the descriptive statistics show that respondents tend to agree in almost all of the factors with packaging-free oats rather than milk. Notably, the category of milk clearly led to lower purchase intention. A possible reason for that could be that respondents have a vegan diet which has become very popular lately and is also predicted to be the biggest food trend of 2018 (Loria, 2017). In our survey, the term milk was not further specified, which is why respondents may have considered regular cow milk instead of for instance plant-based milk, hence rather disagreed with questions regarding the purchase intention. This might also be the case for respondents who have a milk allergy or are lactose-intolerant. Moreover, the descriptive statistics showed that respondents are environmental concerned and further cutting on dairy towards sustainable consumption might be common among environmental conscious consumers to shrink the carbon footprint (Shalant, 2017).

Gender
This study has empirically tested whether there is a statistical significant gender difference in the context of attitude and intention. The results of the independent sample t-test showed that female respondents have a more favorable attitude towards packaging-free shopping compared to men. In addition, they are more likely to purchase packaging-free products, contrary to men who are clearly indecisive. This result might be driven by the fact, that women are more environmental concerned (Fisher, Bashyal, & Bachman, 2012; Harris, Burress, & Eicher, 2000; Kollmuss & Agyeman, 2002) which highly influences attitude, which in turn predicts consumers purchase intention the most. Moreover, studies have shown that women are still the primary grocery shoppers in German households (Procher & Vance, 2013) and hence, may approach grocery shopping differently than men, which could be another explanation.
Age
Interestingly, the independent sample t-test results showed that both, old and young millennials, hold a favorable attitude towards packaging-free products, however it is notable that old millennials have a slightly lower mean score, meaning that their attitude is more positive. They also had a higher purchase intention. Perhaps, this is due to the fact that older millennials can relate to this concept of grocery shopping from their childhood, because they have heard or might even have experienced this “old way of shopping” with their grandparents, which is why they are more sensitive. Moreover, the times when they grew up the convenience level in grocery shopping was more likely less advanced. In contrast, it seems like young generation y is used to for instance food being pre-seasoned and pre-chopped paired with other convenient features such as unit packages, dispensability, microwavability.
6 CONCLUSION

6.1 Key Findings

Summing up, this study was guided by the following research questions:

*Research question 1:*
Which factors of the extended TPB model determine German generation y’s purchase intention towards packaging-free products in mainstream grocery stores the most?

This study has used the TPB framework to investigate the factors that influence German generation y’s purchase intention towards packaging-free products the most. Thereby, the TPB was extended with two additional variables, environmental concern and barriers, respectively. EC towards attitude was found to have a strong and positive relationship and thereby affects the purchase intention indirectly. Moreover, attitude was found the most important driver in determining German generation y’s purchase intention. In other words, respondents are guided by their own moral idea of whether packaging-free shopping is right and are not influenced by relevant others such as friends or family. In this regard, SN indeed showed no significant relationship with intention. In addition, barriers, as the newly added factor, were found the second main driver and had a stronger effect in predicting intention than PBC, which received the lowest weight out of all factors.

The extended TPB model showed a higher predictive power in measuring German generation y’s purchase intention compared to the original TPB construct. Hence, even though the robustness of the original TPB model has been proven in many studies, our empirical findings reveal that this model only partially explains the behavior. Thus, it underlies explicitly the importance of including additional factors to the model to better predict consumers’ intention in the packaging-free product domain.
Research question 2:
What is the nature of German generation y’s purchase intention towards packaging-free products in mainstream grocery stores?

The respondents of this study are highly environmental concerned and have a favorable attitude towards packaging-free products. Surprisingly, the results are indicating that respondents feel they could overcome the stated barriers, contradicting with the fact that generation y portrays a convenience society. Overall, it can be inferred that respondents show a relatively high intention to purchase packaging-free food products in mainstream grocery stores, oats and milk respectively.

6.2 Theoretical Contributions
The findings of this study contribute to the TPB literature by testing it in a novel context namely, packaging-free shopping among German generation y. Moreover, the original TPB model was extended with additional variables (environmental concern and barriers) which showed a better predictive power explaining German generation y’s purchase intention than the original TPB construct. Hence, the findings of this study can serve as a starting point for future studies.

6.3 Managerial Implications
This study’s findings provide valuable insights for managers and marketers of German mainstream grocery stores who are interested in selectively integrating packaging-free shopping to their stores. The empirical findings reveal that attitude is the most important driver in German generation y’s purchase intention. Evidently, attitude in turn is influenced by the value environmental consciousness. Therefore, in order to encourage German millennials to buy packaging-free products (specifically oats and milk) it is suggested to focus on addressing their value system. Hence, in-store promotions as well as communication campaigns should clearly convey environmental related benefits, be it in terms of the copy or visual. For instance, if any flyers or posters are deployed, it is particularly important to use recyclable paper and plant-based inks, to act in line with the overall sustainable approach. However, it should be emphasized that women are more environmental concerned than men. Thus, when targeting
men, marketers should first form strategies to raise their environmental consciousness in order to make them engage in pro-environmental behavior.

The findings further showed that barriers are the second highest factor determining the purchase intention, which increases when the barriers hindering the individual to do so decrease. Packaging-free food shopping requires consumers responsibility to safely transport their groceries from the store back home. Subsequently, shoppers need to bring for example jars or cloth bags and plan accordingly in advance. However, it seems like the inconvenient time effort associated with it does not appeal to generation y’s lifestyle, who are known to request flexibility. To eliminate this problem, stores should provide the possibility to either purchase or borrow container or operate a sharing scheme. Going shopping without jars and cloth bags is a routinized behavior in today’s society, which is why loyalty programs can be employed to encourage and incentive those who come in equipped.

Further, when a consumer wants to buy high amounts of food items, many containers have to be brought which results in a increased physical effort. This might be even more inconvenient for grocery shoppers without a car. This point is particularly important considering the decline among German generation y of getting a driver’s license (Hallet, 2017). One way to overcome this is by having the groceries delivered. However, retailers should opt for an eco-friendly home delivery service. DHL, one of the leading logistics companies in Germany, is offering a climate-neutral dispatch called “GoGreen” (DHL, n.d.). Utilizing greener logistics can further help grocery stores build a sustainable image, albeit it can be denied that it still leaves an environmental footprint to some extent.

Another factor to consider is the lack of accurate information, which is missing on packaging-free products. To ease this burden, marketers could develop an app that contains all missing information. Simultaneously, the digital format reduces the use of resources (in contrast to paper-based flyers) and allows for customization. Practically spoken, consumers could filter out information that are less relevant to them and declutter the amount of information. It can be stressed that it is quite likely that the app will appeal to digital savvy millennials (Bolton et al., 2013) and could therefore offer much more to streamline consumers shopping experience including features such as: creating grocery lists, meal planning, booking home delivery slots and last but not least paying with your smartphone.
Lastly, it should be taken into account that all responses thus findings rely on the assumption, that packaging-free grocery shopping is possible at the respondents’ grocery store nearby. Therefore, when mainstream grocery stores consider integrating this bulk selling approach to their stores they should do so nationwide.

Summing up, Zero-Waste shopping could be a game changer for German mainstream grocery stores. Having such sustainable offering in their assortment can give them a competitive advantage over others and might attract new customers which will lead to increased sales and profit.

6.4 Limitations

Although our study has accomplished its research purpose, it is not without limitations. Firstly, a non-probability sampling was used to recruit respondents, which is why this study’s results are limited and cannot be generalized to all German millennials.

Secondly, self-selection or positivity bias might be present: the survey was titled “Survey packaging-free grocery shopping” and shared on social networks. Hence, people who are environmental conscious and are already interested in the topic at hand might have been more likely to participate in the survey in contrast to individuals, who are less interested. This could explain the unexpected result that respondents disagree that the aforementioned barriers hinder them to purchase packaging-free products. Besides, it is not clear whether respondents have grasped the complexity of each proposed barrier. In the context of sampling bias, it should also be mentioned that females account for more than ¾ of the sample, which does not represent the gender statistics for German generation y (Statista, 2016). This uneven gender distribution is possibly caused by either the topic of the study, since women are more environmental conscious compared to men (Fisher et al., 2012; Harris et al., 2000; Kollmuss & Agyeman, 2002), thus more likely interested in the topic at hand. Likewise, it could have been caused due to the fact that we, the authors of this study, are both female and tried to leverage our own network.

Thirdly, the scales of the questionnaire have been translated from English to the target’s population native tongue German. The results have been then back translated into English, which might lead to subtle losses or differences in meaning.

Fourthly, our conceptual model predicts 55.7% of the variance in intention, which implies that additional unexplored factors predict German generation y’s intention to purchase packaging-free products.
Fifthly, if respondents do not consume the products oats and milk in the first place, they cannot participate in the survey or they participate with dishonesty which could have consequences for the outcome of the study.

Last but not least, even with the best of intentions, people might not translate these into actual behavior, a fact that is also confirmed by the literature and often referred to as the “intention-behavior gap” (Auger & Devinney, 2007; Carrigan & Attalla, 2001).

### 6.5 Further Research

In light of the limitations, further research opportunities are proposed. One way to do so could be by replicating the study by using a probability sampling due to the possibility to generalize the findings to the population and minimize sampling bias. Moreover, other product categories than oats and milk could be looked into to compare whether the findings would be similar.

In addition, this study is limited to generation y as they are often labelled as the “born green”-generation, however it might be reasonable to compare their behavioral intention with those of baby boomers to investigate whether generation y consumers are “greener” than its ancestors.

Further research may want to target millennials from collectivistic countries as they can have fundamentally different characteristics from individualistic countries such as Germany. In this sense, the authors would in particular be curious to see whether the non-significant relationship of subjective norms on purchase intention will be different.

Also, in terms of the newly added factor barrier, instead of focusing on the missing information on packaging-free products in general, it would be interesting to specifically differentiate for example between compulsory information including nutritional values, ingredients list, best before date etc. and marketing information such as recipes.

Ultimately, it is advisable not to look at the intention solely but also the actual purchase behavior for instance by means of an observational study.
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APPENDIX

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Appendix 1: The principles of the MRS Code of Conduct

The Principles of the MRS Code of Conduct include (The Market Research Society, 2014):

1. “Researchers shall ensure that participation in their activities is based on voluntary informed consent.
2. Researchers shall be straightforward and honest in all their professional and business relationships.
3. Researchers shall be transparent as to the subject and purpose of data collection.
4. Researchers shall respect the confidentiality of information collected in their professional activities.
5. Researchers shall respect the rights and well-being of all individuals.
6. Researchers shall ensure that participants are not harmed or adversely affected by their professional activities.
7. Researchers shall balance the needs of individuals, clients, and their professional activities.
8. Researchers shall exercise independent professional judgement in the design, conduct and reporting of their professional activities.
9. Researchers shall ensure that their professional activities are conducted by persons with appropriate training, qualifications and experience.
10. Researchers shall protect the reputation and integrity of the profession.”
Appendix 2: The Questionnaire

Survey Instructions

Esra & Pia

Filter

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Kaufst Du im Allgemeinen verpackungsfreie Lebensmittel?
  o  Ja
  o  Nein

Environmental Concern

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Ich bin um die Umwelt besorgt.
  o  Ich stimme voll und ganz zu
  o  Ich stimme zu
  o  Teils/teils
  o  Ich stimme nicht zu
  o  Ich stimme gar nicht zu

Die Verbesserung der Umwelt ist eins meiner Anliegen.
  o  Ich stimme voll und ganz zu
  o  Ich stimme zu
  o  Teils/teils
  o  Ich stimme nicht zu
  o  Ich stimme gar nicht zu

Ich denke oft darüber nach, wie ich die Umwelt verbessern kann.
  o  Ich stimme voll und ganz zu
  o  Ich stimme zu
  o  Teils/teils
  o  Ich stimme nicht zu
  o  Ich stimme gar nicht zu
**Scenario**

Bitte gehe im folgenden davon aus, dass verpackungsfreies Müsli und Milch in Deinem Supermarkt erhältlich sind. Dabei bringst du einen eigenen Behälter mit oder kaufst diesen Vor Ort. Im Anschluss kannst du diesen individuell befüllen.

[Image of various ingredients]

Quelle: http://homemade-deliciousness.net/zero-waste-babysteps-2-ein-update/ (15.03.2018)

**Attitude**

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Es ist **gut** für mich, verpackungsfreies Müsli zu kaufen.
- o Ich stimme voll und ganz zu
- o Ich stimme zu
- o Teils/teils
- o Ich stimme nicht zu
- o Ich stimme gar nicht zu

Es ist **vorteilhaft** für mich, verpackungsfreies Müsli zu kaufen.
- o Ich stimme voll und ganz zu
- o Ich stimme zu
- o Teils/teils
- o Ich stimme nicht zu
- o Ich stimme gar nicht zu

Es ist **positiv** für mich, verpackungsfreies Müsli zu kaufen.
- o Ich stimme voll und ganz zu
- o Ich stimme zu
- o Teils/teils
- o Ich stimme nicht zu
- o Ich stimme gar nicht zu
Es ist **gut** für mich, verpackungsfreie **Milch** zu kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Es ist **vorteilhaft** für mich, verpackungsfreie **Milch** zu kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Es ist **positiv** für mich, verpackungsfreie **Milch** zu kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

**Subjective Norms**

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Meine Familie würde mir raten, verpackungsfreies **Müsli** zu kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Die meisten Menschen, die ich wertschätze, würden verpackungsfreies **Müsli** kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Freunde, die mir wichtig sind, sind der Ansicht, dass ich verpackungsfreies **Müsli** kaufen sollte.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Meine Familie würde mir raten, verpackungsfreie **Milch** zu kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu
Die meisten Menschen, die ich wertschätze, würden verpackungsfreie Milch kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Freunde, die mir wichtig sind, sind der Ansicht, dass ich verpackungsfreie Milch kaufen sollte.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

**Perceived Behavioural Control**

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Ich habe die finanziellen Mittel verpackungsfreies Müsli (anstatt verpacktem) zu kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Nichts würde mich davon abhalten verpackungsfreies Müsli (anstatt verpacktem) zu kaufen, wenn es verfügbar ist.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Wenn ich möchte, könnte ich verpackungsfreies Müsli (anstatt verpacktem) kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Ich habe die finanziellen Mittel verpackungsfreie Milch (anstatt verpackte) zu kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Nichts würde mich davon abhalten verpackungsfreie Milch (anstatt verpackte) zu kaufen, wenn es verfügbar ist.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
Wenn ich möchte, könnte ich verpackungsfreie Milch (anstatt verpackte) kaufen.

- Ich stimme nicht zu
- Ich stimme gar nicht zu
- Wenn ich möchte, könnte ich verpackungsfreie Milch (anstatt verpackte) kaufen.
- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

**Barriers**

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Verpackungsfreies Müsli zu kaufen ist mit erhöhtem Zeit- und Planaufwand verbunden und würde mich deshalb davon abhalten.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Der erhöhte körperliche Aufwand würde mich davon abhalten verpackungsfreies Müsli zu kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Da Informationen (wie z.B. Mindesthaltbarkeitsdatum, Nährwertangaben, etc.) bei verpackungsfreiem Müsli zu Hause nicht mehr nachvollziehbar sind, würde es mich davon abhalten diese zu kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Verpackungsfreie Milch zu kaufen ist mit erhöhtem Zeit- und Planaufwand verbunden und würde mich deshalb davon abhalten.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu

Der erhöhte körperliche Aufwand würde mich davon abhalten verpackungsfreie Milch zu kaufen.

- Ich stimme voll und ganz zu
- Ich stimme zu
- Teils/teils
- Ich stimme nicht zu
- Ich stimme gar nicht zu
Da Informationen (wie z.B. Mindesthaltbarkeitsdatum, Nährwertangaben, etc.) bei verpackungsfreier Milch zu Hause nicht mehr nachvollziehbar sind, würde es mich davon abhalten diese zu kaufen.

Intention

Bitte wähle die Aussage aus, die am ehesten auf Dich zutrifft.

Ich beabsichtige, verpackungsfreies Müsli zu kaufen.

Ich werde mich bemühen, in der nahen Zukunft verpackungsfreies Müsli zu kaufen.

Ich plane, verpackungsfreies Müsli zu kaufen.

Ich beabsichtige, verpackungsfreie Milch zu kaufen.

Ich werde mich bemühen, in der nahen Zukunft verpackungsfreie Milch zu kaufen.

Ich plane, verpackungsfreie Milch zu kaufen.
Demographics

Geschlecht:
- weiblich
- männlich

Wie alt bist Du?
- jünger als 18
- älter als 38

Hast Du die deutsche Staatsbürgerschaft oder bist Du in Deutschland wohnhaft?
- ja
- nein

Was ist Dein höchster Bildungsabschluss?
- Hauptschulabschluss
- Realschulabschluss
- Abitur
- Bachelor
- Master
- Doktor
- Sonstige

Wie hoch ist Dein monatliches Nettoeinkommen?
- Weniger als 1.000 €
- 1.000 € - 3.000 €
- 3.000 € - 5.000 €
- Mehr als 5.000 €
Appendix 3: SPSS Codebook

<table>
<thead>
<tr>
<th>SPSS Variable Name</th>
<th>Variable Meaning</th>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total_EC</td>
<td>Mean of all environmental concern measurements</td>
<td>1 = “Strongly agree”; … 5 = “Strongly disagree”</td>
</tr>
<tr>
<td>Total_AT</td>
<td>Mean of all attitude measurements</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_SN</td>
<td>Mean of all subjective norms measurements</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_PBC</td>
<td>Mean of all perceived behavioral control measurements</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_BA</td>
<td>Mean of all barrier measurements</td>
<td>— II—</td>
</tr>
<tr>
<td>Total_I</td>
<td>Mean of all intention measurements</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_AT_OATS</td>
<td>Mean of all attitude measurements on oats</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_SN_OATS</td>
<td>Mean of all subjective norms measurements on oats</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_PBC_OATS</td>
<td>Mean of all perceived behavioral control measurements on oats</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_BA_OATS</td>
<td>Mean of all barrier measurements on oats</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_I_OATS</td>
<td>Mean of all intention measurements on oats</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_AT_MILK</td>
<td>Mean of all attitude measurements on milk</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_SN_MILK</td>
<td>Mean of all subjective norms measurements on milk</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_PBC_MILK</td>
<td>Mean of all perceived behavioural control measurements on milk</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_BA_MILK</td>
<td>Mean of all barrier measurements on milk</td>
<td>— II —</td>
</tr>
<tr>
<td>Total_I_MILK</td>
<td>Mean of all intention measurements on milk</td>
<td>— II —</td>
</tr>
<tr>
<td>NEW_Age</td>
<td>Indicates whether the respondent belongs to young (≥ 1989) or old (≤ 1988) generation</td>
<td>1 = “Young”; 2 = “Old”</td>
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</tbody>
</table>
Appendix 4: Cronbach’s Alpha Values

/VARIABLES=EC_1 EC_2 EC_3/SCALE('ALL VARIABLES') ALL/MODEL=ALPHA

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
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</thead>
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<tr>
<td>.881</td>
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</tbody>
</table>

/VARIABLES=Attitude_good_oats Attitude_beneficial_oats Attitude_positive_oats Attitude_good_milk Attitude_beneficial_milk Attitude_positive_milk /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA

<table>
<thead>
<tr>
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<th>N of Items</th>
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</thead>
<tbody>
<tr>
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</table>

/VARIABLES=SN_familly_oats SN_people_oats SN_friends_oats SN_family_milk SN_people_milk SN_friends_milk /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

/VARIABLES=PBC_price_oats PBC_availability_oats PBC_will_oats PBC_price_milk PBC_availability_milk PBC_will_milk /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
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</table>

/VARIABLES=Barriers_time_oats Barriers_physical_oats Barriers_information_oats Barriers_time_milk Barriers_physical_milk Barriers_information_milk /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA

<table>
<thead>
<tr>
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</tr>
</thead>
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</tbody>
</table>

/VARIABLES=Intention_willing_oats Intention_effort_oats Intention_plan_oats Intention_willing_milk Intention_effort_milk Intention_plan_milk /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA

<table>
<thead>
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</thead>
<tbody>
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### Appendix 5: Mahalanobis

#### Residuals Statistics

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<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
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<tbody>
<tr>
<td>Predicted Value</td>
<td>1.3613</td>
<td>3.5073</td>
<td>1.9222</td>
<td>.48361</td>
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<tr>
<td>Std. Predicted Value</td>
<td>-1.160</td>
<td>3.278</td>
<td>.000</td>
<td>1.000</td>
<td>422</td>
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<tr>
<td>Standard Error of Predicted Value</td>
<td>.035</td>
<td>.117</td>
<td>.046</td>
<td>.012</td>
<td>422</td>
</tr>
<tr>
<td>Adjusted Predicted Value</td>
<td>1.3503</td>
<td>3.5409</td>
<td>1.9222</td>
<td>.48377</td>
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<td>.00000</td>
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<td>.000</td>
<td>1.001</td>
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<td>.70126</td>
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<tr>
<td>Mahal. Distance</td>
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<td>10.743</td>
<td>.998</td>
<td>1.287</td>
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<td>Cook’s Distance</td>
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<td>.062</td>
<td>.002</td>
<td>.005</td>
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<tr>
<td>Centered Leverage Value</td>
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<td>.026</td>
<td>.002</td>
<td>.003</td>
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a. Dependent Variable: Total_AT

#### Residuals Statistics

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted Value</td>
<td>.9586</td>
<td>4.8299</td>
<td>2.5071</td>
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<td>422</td>
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<td>Standard Error of Predicted Value</td>
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<td>.155</td>
<td>.073</td>
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</table>

a. Dependent Variable: Total_I
Appendix 6: Correlation

<table>
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<tr>
<th></th>
<th>Total_EC</th>
<th>Total_AT</th>
<th>Total_SN</th>
<th>Total_PBC</th>
<th>Total_BA</th>
<th>Total_I</th>
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<tbody>
<tr>
<td><strong>Correlations</strong></td>
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<td>Pearson Correlation</td>
<td>1</td>
<td>.570**</td>
<td>.267**</td>
<td>.309**</td>
<td>-.444**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
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<td>.000</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
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<tr>
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<td>422</td>
<td>422</td>
<td>422</td>
<td>422</td>
</tr>
<tr>
<td>Total_AT</td>
<td>Pearson Correlation</td>
<td>.570**</td>
<td>1</td>
<td>.394**</td>
<td>.398**</td>
<td>-.574**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
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</tr>
<tr>
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<td>422</td>
<td>422</td>
<td>422</td>
<td>422</td>
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<tr>
<td>Total_SN</td>
<td>Pearson Correlation</td>
<td>.267**</td>
<td>.394**</td>
<td>1</td>
<td>.248**</td>
<td>-.304**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
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<td>.000</td>
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<td>Total_PBC</td>
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<td>.398**</td>
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<td>Sig. (2-tailed)</td>
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<td>422</td>
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<tr>
<td>Total_BA</td>
<td>Pearson Correlation</td>
<td>-.444**</td>
<td>-.574**</td>
<td>-.304**</td>
<td>-.454**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
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<td>422</td>
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<td>422</td>
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</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
### Appendix 7: Single Regression & Durbin Watson

**Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
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</thead>
<tbody>
<tr>
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<td>.570</td>
<td>.324</td>
<td>.323</td>
<td>.69875</td>
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a. Predictors: (Constant), Total_EC  
 b. Dependent Variable: Total_AT

**Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>95.0% Confidence Interval for B</th>
<th>Correlations</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>.718</td>
<td>.091</td>
<td>7.850</td>
<td>.000</td>
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<tr>
<td></td>
<td>Total_EC</td>
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<td>.045</td>
<td>14.201</td>
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</table>

a. Dependent Variable: Total_AT
Appendix 8: Multiple Regression, Durbin-Watson & VIF

**Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.557</td>
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</table>

a. Predictors: (Constant), Total_BA, Total_SN, Total_PBC, Total_AT  
b. Dependent Variable: Total_I

**Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>95.0% Confidence Interval for B</th>
<th>Correlations</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
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<td>Sig.</td>
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<tr>
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<tr>
<td></td>
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<tr>
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<td>-4.673</td>
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a. Dependent Variable: Total_I
Appendix 9: Multiple Regression Oats & Milk

**Model Summary**

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<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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a. Predictors: (Constant), Total_BA_OATS, Total_SN_OATS, Total_PBC_OATS, Total_AT_OATS
b. Dependent Variable: Total_IN_OATS

**Coefficients**

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<tr>
<th>Model</th>
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a. Dependent Variable: Total_IN_OATS
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\(^a\) Predictors: (Constant), Total_BA_MILK, Total_SN_MILK, Total_PBC_MILK, Total_AT_MILK  
\(^b\) Dependent Variable: Total_IN_MILK

### Coefficients\(^a\)

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\(^a\) Dependent Variable: Total_IN_MILK

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XXXIII
Appendix 10: Independent Sample t-test on Gender and Age

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## Independent Samples Test Age

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XXXVII