



**LUT School of Business and Management**

Bachelor's thesis, Business Administration

International Marketing

**The influence of parents on young adults' sustainable consumer behavior**

**Vanhempien vaikutus nuorten aikuisten vastuulliseen kuluttamiseen**

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## **ABSTRACT**

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The research intended to explain the extent which parents influence on their children's sustainable food consumption when they have already moved out of the house. The topic is increasingly important, because food production has a large effect on global warming and many other environmental problems. Therefore, transforming consumption patterns more sustainable becomes even more topical and it must be understood, what influences on the sustainable consumption. The research was conducted as a quantitative study and the data was gathered by using an internet-based survey. The survey had altogether of 181 respondents and most of them were university students.

The results of the study display that parents' attitudes, but also the gender of the respondent influence on the attitudes regarding sustainable food consumption. Furthermore, vegetarian food consumption is even more influenced by the gender of the respondent than childhood practices relating to vegetarian food. It was found that women consume more vegetarian food, which may be due to general attitudes of the society. In contrast, regarding consumption of generally sustainable food, such as local and domestic food, the consumption of these in childhood has a very large effect and for instance, gender does not affect. However, regarding the usage of vegetables the gender has an influence as women consume a lot more vegetables, but the biggest influence is still on the consumption of vegetables in one's childhood. Consumption of sustainable food in childhood was found to have an influence on the young adults consuming same products as their parents. In addition, young adults liking food in childhood was found to have an effect on buying same products as their parents in their childhood.

## TIIVISTELMÄ

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Tutkielman tavoitteena oli selvittää miten vanhempien vastuullinen kuluttaminen lapsuudessa vaikuttaa nuorten aikuisten kulutukseen. Aihe on tärkeä, sillä ruuantuotannon vaikutukset ilmastonmuutokseen ja muihin ympäristöongelmiin kasvavat, jos ruuankulutustapoja ei muokata vastuullisempaan suuntaan. Tämän vuoksi on ymmärrettävä millaiset tekijät vaikuttavat vastuulliseen ruuan kulutukseen ja millä tavoin. Tutkimus toteutettiin kvantitatiivisena tutkimuksena ja sen aineisto kerättiin verkkokyselyllä. Kyselyyn vastasi kaikkiaan 181 henkilöä ja he olivat pääosin yliopisto-opiskelijoita.

Tulokset osoittavat, että vastuulliseen kuluttamiseen liittyviin asenteisiin nuorilla vaikuttavat heidän vanhempiansa asenteet, mutta myös heidän sukupuolensa. Sen lisäksi kasvisruoan kulutukseen sukupuoli vaikutti jopa enemmän, kuin kasvisruoan kulutus lapsuudessa. Tutkimus osoitti, että naiset kuluttivat kasvisruokaa huomattavasti enemmän, mikä saattaa johtua yhteiskunnan yleisistä asenteista. Sen sijaan, yleisesti vastuullisen ruuan kulutukseen, eli esimerkiksi lähiruoan ja kotimaisen ruoan kulutukseen, näytti vaikuttavan erittäin suuresti vanhempien toiminta nuorten aikuisten lapsuudessa, eikä esimerkiksi sukupuolella ollut vaikutusta. Toisaalta vihannesten kulutukseen vaikutti vanhempien toiminnan lisäksi myös sukupuoli, naisten ollessa vihanneksia kuluttavampi osapuoli. Näistä tekijöistä yleisesti vastuullisen ruuan kuluttaminen lapsuudessa myös lisäsi nuorten aikuisten keskuudessa samojen ruokatuotteiden kuluttamista, mitä heidän vanhempansa kuluttivat lapsuudessa. Samojen ruokatuotteiden kulutukseen vaikutti myös lapsuudessa syödyistä ruuista pitäminen.

## Table of Content

1. Introduction .....	1
1.1. Background of the study .....	1
1.1.1. Emissions of food production .....	1
1.1.2 The influence of different diets on sustainability .....	2
1.3. Research gap and research questions .....	4
1.4. Limitations in the research group .....	5
1.5 The Structure of the thesis .....	5
2. Consumer behavior in sustainable consumption .....	6
2.1. Theory of reasoned action and theory of planned behavior .....	7
2.2. Previous research on sustainable consumption .....	10
2.2.1. The influence of social factors on young adults' consumption .....	10
2.2.2. Factors influencing on sustainable consumption .....	11
2.2.3. Research on family's effect on sustainable food consumption .....	13
3. Methods .....	14
3.1. The survey .....	14
3.2 Background information of the respondents .....	15
3.3 The items .....	16
4. Empirical analysis of the data .....	18
4.1 Factor analysis .....	18
4.1.1 Conducting the analysis .....	18
4.1.2 Parents' behavior .....	18
4.1.3 Respondents' behavior .....	20
4.1.4. Attitudes .....	21
4.2 Linear regression analysis .....	23
4.2.1 Linear regression on the attitudes .....	23
4.2.2 Linear regression on sustainable consumption .....	25
4.2.3. Linear regression on young adults' usage of products .....	28
5. Conclusions .....	30
5.1. Attitudes towards sustainable consumption .....	30
5.2. Sustainable consumption of young adults .....	31
5.2.1. Influence on consuming vegetarian food .....	31
5.2.2. Influence on consuming sustainable food .....	32
5.2.3. Influence on consuming vegetables .....	33
5.3. The influence on buying same food products as parents .....	34

5.4 Limitations of the study.....	34
5.5 Future research .....	35
References .....	36

## **APPENDICES**

Appendix 1: Correlation matrixes of the factors	
Appendix 2: Histograms of respondents' and their parents' attitudes	
Appendix 3: correlation matrix – Attitudes	
Appendix 4: The linear relationship in linear regression on attitudes	
Appendix 5: Independence of the residuals in linear regression on attitudes	
Appendix 6: Multicollinearity in linear regression on attitudes	
Appendix 7: Normality of the residuals in linear regression on attitudes	
Appendix 8: Effect sizes – sustainable food consumption	
Appendix 9: Independence of the residuals in linear regression on sustainable consumption	
Appendix 10: Multicollinearity of the linear regression on the sustainable consumption	
Appendix 11: Normality of the residuals - sustainable consumption	
Appendix 12: Linear relationship – sustainable food consumption	
Appendix 13: Effect sizes – young adults' usage of products	
Appendix 14: Linear relationship - young adults' usage of products	
Appendix 15: Independence of the residuals – young adults' usage of products	
Appendix 16: Multicollinearity of the variables - young adults' usage of products	
Appendix 17: Normality of the residuals – young adults' usage of products	

## **1. Introduction**

This research paper is the Bachelor's thesis done as part of the Business Administration studies in LUT University. The thesis studies the influence of parents to their adult children's sustainable consumer behavior. It is explored from the point-of-view that how the ways that parents consumed in the young adults' childhood and the times they lived with their parents still influence on their own consuming to this day. It is also explored that if the parents' thoughts about consuming sustainable products have passed on to their descendants and they are concerned about the environmental influence of their consuming if their parents were too. The point-of-view of the thesis in sustainable consumption is consuming sustainable food, which includes for example local and vegetarian foods.

### ***1.1. Background of the study***

Solving sustainability issues is a huge part of fighting against the global warming. However, the traditional consumption patterns and systems of production are mainly not sustainable, even the general attitudes towards sustainable consumption are positive and the public interest in sustainability is increasing. It has been even argued that consumption is actually the main driver of unsustainable development. The patterns of behavior are not consistent with the attitudes of people. Although, through the public interest in sustainable consumption the governments as well as the food industries have been putting pressure on sustainable development (Fischer, Böhme & Geiger, 2017; Tseng et al., 2013; Vermeir & Verbeke, 2006; Vermeir & Verbeke, 2008).

#### ***1.1.1. Emissions of food production***

Producing sustainable food has a big part in the fight against the global warming since for instance, agriculture contributes of 30 per cent of anthropogenic GHG emissions that cause climate change (Smith & Gregory, 2012). The GHG emissions refer the Greenhouse Gas Emissions, that are the gases that trap heat to the atmosphere and through that influence on the global warming. The main greenhouse gases include for instance carbon dioxide, methane,

nitrous oxide, and fluorinated gases, of which each has an impact to the global warming in different ways. Of the GHG emissions carbon dioxide is the primary gas entering the atmosphere through the actions of humans. Carbon dioxide mostly emits from transportation, industry, and electricity, whereas agriculture and for instance the domestic livestock, such as cattle, sheep, and goat, emit methane to the atmosphere. Methane is also emitted by different sources in the nature, for example natural wetlands, but nowadays even 65 percent of the methane emissions are caused by human activities. Methane does not live as long in the atmosphere as carbon dioxide, but in a hundred-year period methane has 25 times greater impact on the atmosphere than carbon dioxide since it is more efficient in trapping the radiation. (EPA, 2020) In addition to the problems regarding climate change, the food production influences on series of other environmental problems such as water pollution, water paucity, soil degradation and loss of habitats and biodiversity (Reisch, Eberle & Lorek, 2013).

To solve the issues influencing sustainable consuming of food, it must be understood what effects on choices regarding this problem. Sustainable consumer behavior can be encouraged by the government, for instance, by using taxes or prohibitions, but after all the decisions are made on an individual level. Sustainable consumption needs the consumer to make responsible decisions when considering their wants and needs (Vermeir & Verbeke, 2006).

### ***1.1.2 The influence of different diets on sustainability***

Food diets have direct effect on people's health, but also on the environment. Van Dooren et al (2014) have discussed in their research that the Mediterranean diet is the number one diet when having health as a focus, but also good scores in all sustainability indicators. The content of Mediterranean diet varies depending on the country and culture, but in general it consists of for example lots of fruit, vegetables, beans, grains, fish, and unsaturated fats, such as olive oil. The Mediterranean diet usually has a low intake of meat and dairy products (NHS, 2020). It is discussed that meat and dairy products are the most GHG-intensive food products and reducing them even by half from the diet has a great effect on the sustainability of the diet. The Mediterranean diet is not only great because of less consumption of meat, but also because of less consumption of extras in the diet. The extras refer to food products that are high in energy, but also have really little nutritional value. The food products considered as extras

are also responsible of high percentage of GHG missions and therefore have a high environmental impact (van Dooren et al., 2014).

The highest score on different sustainability indicators scores the vegan diet. Vegan diet refers to a diet in which a person does not consume any animal products, whereas vegetarian diet, which is the second most sustainable diet, means excluding meat in one's diet. Vegan diet and vegetarian diet are also the second and the third on the list of the healthiest diets, only after the Mediterranean diet. Vegan diet cannot be considered as healthy because its lack of some nutrients, such as vitamin D and iron. Vegetarian diet also has some same lacking nutrition, but these lacks can be replaced with different kind of meat substitutes and for instance, soymilk. In addition, fish oils are an important part of a healthy diet, but it is completely absent from vegan diets, apart from short-term sources from land plants. The health scores of vegetarian diets rise immediately if the fish oils are added to the diet, but unfortunately it also reduces the level of sustainability of the diet. The vegetarian diet, which consist of fish oils is called pesco-vegetarian diet and another healthier choice, which includes little portions of meat and fish, is called semi-vegetarian diet (van Dooren et al., 2014).

It has been stated in the study by van Dooren et al. (2014) that there is a clear correlation between the healthy foods and environmentally sustainable foods and that more the product is recommended to eat in food recommendation pyramids, the more sustainable the product usually is from the environmental point-of-view. Although, this is only proven to be true on limited products and it does not work in all of the situations (van Dooren et al., 2014).

The environmental benefits of eating more plant-based food are generally much larger than the emissions that the transportation of the food from different countries causes. This supports the fact that eating more plant-based food is the key to reducing the potential contributors of climate change. Although, plant-based food that is locally produced is generally going to be even more environmentally friendly choice in a diet (Gonzalez, Frostell & Carlsson-Kanyama, 2011).

### **1.3. Research gap and research questions**

Sustainable consumer behavior is widely researched from the point-of-view of family members influencing each other, but it is also important to realize that parents' influence does not disappear when one does move out of their childhood home. Preferences on food consumption are likely to form at a very young age and for instance, depending on whether the parents feed the child with healthier choices or fast-food and sweets is going to have a great influence on the child's preferences (Yee, Lwin, Ho; 2017). In addition to that, after moving out of the house, young adults usually consider their family as a main source of information when they are facing new situations of consumption (Bravo, Fraj, Martinez; 2006). Therefore, it is also assumed that parent's choices on consumption of sustainable food will influence on their children. The goal of the study is to explore whether the young adults are likely to make the same choices as their parents with sustainable food. This forms the research question and the sub-questions:

- **How do the parents influence on sustainable consumption of young adults regarding food products?**
  - To what extent are the young adults more likely to have positive attitudes towards sustainability of food if their parents had positive attitudes towards sustainability of food?
  - To what extent are young adults more likely to make sustainable choices on their consumption of food, if their parents bought sustainably produced food, when they were young?
  - To what extent do the young adults favor the food products their parents bought home when they were young?

### ***1.4. Limitations in the research group***

Young adults move out of their houses in very different ages around the world among different cultures, which sets a limitation for the study to only include Finnish young adults as respondents. This limitation of the study is done to avoid cross-cultural issues in analyzing the results and to make the results as comparable as possible. It is argued that the degree of environmental concern varies a lot depending on the country of origin of the consumer and that the consumers from developed countries are much more concerned about the environmental influence of their consuming (Paul, Modi & Patel; 2016).

### ***1.5 The Structure of the thesis***

The thesis consists of introduction in which the background and importance of the study are stated as well as the research questions are represented with the limitations of the research and target group. After the introduction, the theory of the thesis is represented, which includes defining the important concepts such as consumer behavior and its sustainability. The theory part also includes broad overview of theory of reasoned action and theory of planned behavior, which are both successfully applied to numerous of situations regarding expected behavior. In addition to these several previous researches regarding sustainable consumption and the social impact in consumer behavior are taken a look at.

The second part of the thesis is the empirical part of the research. The methods to gather the empirical data for the research are presented, but also the background information of the respondents including their age, gender, and highest degree of education. The empirical analyses of the data also include statistical tests, factor analysis and several linear regression analyses. The statistical tests intend to give answers to the research questions.

Finally, after the empirical analyses and statistical tests, the results are discussed, and conclusions are made based on them. The limitations of this study are discussed and also the factors that could have made the research even more reliable. In addition, future implications relating to the topic are made.

## 2. Consumer behavior in sustainable consumption

The goal of a consumer is to satisfy their wants and needs and the process to fulfill this goal is called consumer behavior. This means that the concept of consumer behavior defines the selection, usage, and disposal of different products, services, ideas, and brands, but also refers to the motives behind these actions (Solomon, Russell-Bennett & Previte, 2012). Consumer behavior is influenced by personal, psychological, and social factors. Personal factors include the personal interests and opinions of a person, which are influenced for example by the age, gender, profession, culture, and background. Psychological factors represent the response of a consumer to a certain marketing campaign, which is influenced by the perceptions and attitudes of the person. Although, the psychological factors are also influenced by the ability of an individual to understand new information and their own perception of their needs. Social factors, however, mean the influence of the social environment around a person meaning for example family, friends, and social media (Smith, 2016). Consumer behavior is an outcome of process of socialization, which means that children go through various of different social and cognitive phases in the journey from birth to adulthood. During these phases and consumer socialization, the children develop their skills, knowledge, and attitudes, which grow them to be fully functioning consumers (North & Kotze, 2001).

The behavior of which the person follows can be either positive or negative towards the brand or product and therefore it is an important concept for the marketers. An example of negative consumer behavior includes for example spreading negative information about the company through word-of-mouth, which might change other people's opinions of the company towards more negative. On the contrary, positive consumer behavior can promote the brand or product, and for instance positive word-of-mouth can lead more people to try on a product or service (Wiese & Kruger, 2016). Understanding consumer behavior is important for the company when promoting their current products, but also when launching new products. Failing to understand the customers and their needs will most likely eventually lead to failure of the product (Cloutrack, 2021).

Sustainable consumer behavior has generally been associated with pro-environmental behavior, such as buying green products, reusing products, recycling, and saving energy. However, actual sustainability also includes sustainable business strategies as well as environmentally friendly behavior. It is also introduced that sustainability should take into consideration maintaining people's health, fair trade, and economy. These factors are included in the broader views of sustainable consumer behavior. Through these definitions, sustainable consumer behavior can be generally defined as having a good balance of financial responsibility, pro-environmental actions in their life, social equity and maintaining of one's personal health. Thus, non-sustainable consumer behavior can be defined as behavior that do not appreciate the factors described above, but rather performs riskier and more excessive activities and follows rather unhealthy behavior models (David Lee et al., 2016).

### ***2.1. Theory of reasoned action and theory of planned behavior***

Theory of reasoned action, proposed by Martin Fishbein and Icek Ajzen (1975) and theory of planned behavior, proposed by Icek Ajzen (1985) have found to explain the behavior and ethical consumption of individuals well and those are widely used in literature of sustainable consumer behavior. Therefore, their main elements and differences are explored in the following chapter. Although previously it has been found that the theory of planned behavior explains food choice behaviors better through its determinants of intention and especially the determinant of behavioral control (Chang, 1998).

Theory of planned behavior and theory of reasoned action contain many same elements since theory of planned behavior is an extension of the theory of reasoned action. Theory of reasoned action is determined by the fact that the behavior of an individual is controlled by behavioral intention and influenced only by two factors, attitude toward the behavior and subjective norm, which defines the person's belief of if they should commit the behavior. This means that if the attitude towards the behavior is positive and they think, for example, that their significant other wants them to perform the behavior, it will result as higher intention. This higher intention will lead the individual to be more likely to actually perform the behavior.

This correlation between the subjective norm and attitude has been confirmed in several studies (Sheppard, Hartwick & Warshaw, 1988).

In theory of reasoned action, external factors are only believed to affect either on the attitude or the subjective norm of the individual. However, behavior is influenced by more things than just individual's intention, which causes problems when analyzing the behavior of someone. Another problem regarding the theory of reasoned action comes to existence if the person fails to meet the standards intended to achieve or after that, because it is unclear how the failing influences on the individual's intentions. Therefore, it is argued that the theory of planned behavior can better predict the behavior of an individual, because it also takes into consideration the resources needed to carry out the behavior as a determinant of perceived behavioral control. Although, both of the theories have been successfully applied to numerous of situations (Chang, 1998).

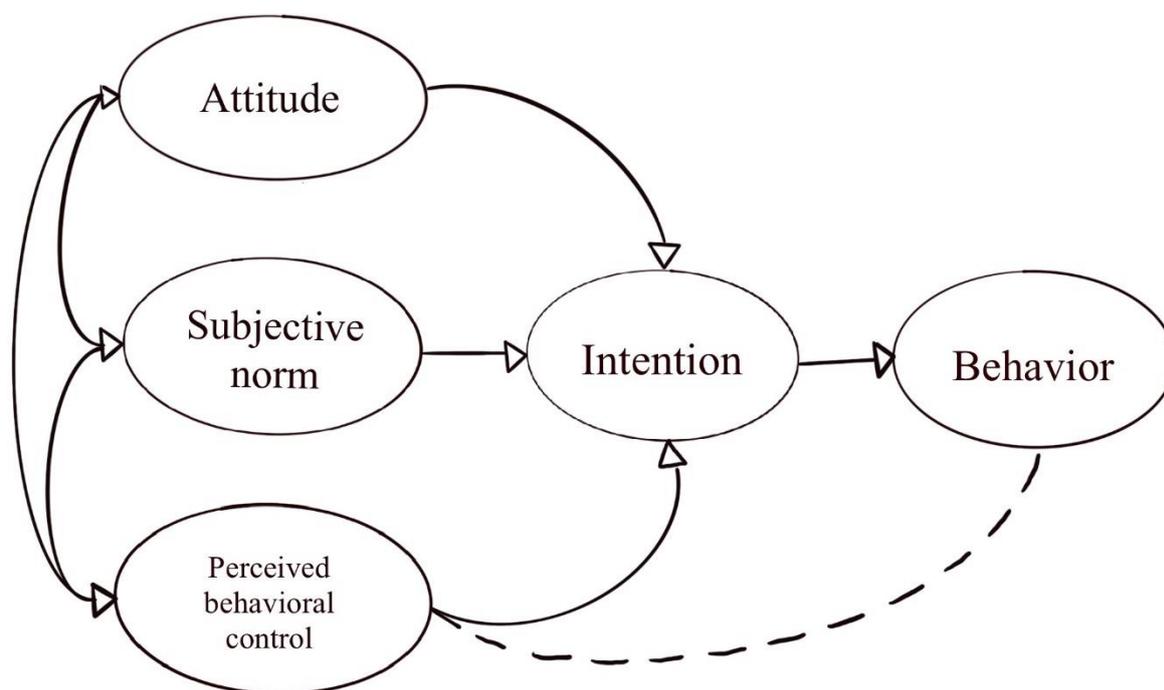


Figure 1: Theory of planned behavior (Ajzen, 1985)

Generally, both of these theories lean on to the fact that stronger the intention to perform the behavior is, the more likely it will be performed. However, the theory of planned behavior takes into consideration how strong the intention to perform the behavior is, and it does not matter if the behavior is not under volitional control. It is pointed out that the third determinant of intention, perceived behavioral control, is reflecting both, the inner factors of control through self-efficacy and the external factors of perceived difficulties in the way to carry out the behavior. (Vermeir & Verbeke, 2006)

As considering the usage of green products, it is argued that the theory of planned behavior manages to explain the behavioral models better. Paul et al. (2016) did a research in which they predicted consumption of green products by using the theory of reasoned action and the theory of planned behavior. The research indicated through the theory of planned behavior that if the consumer had both positive perceived behavioral control and positive attitude, it was likely that the consumer will have intentions to purchase sustainable products (Paul et al., 2016).

It has been also researched by Robinson & Smith (2002) that generally people have had supportive attitudes towards buying sustainable food and they were interested in performing this behavior, but they did not have a past to support these arguments and were commonly not buying sustainable foods. This was mostly because of the perceived barriers of the consumers, which were for example such as lack of availability and the price of the sustainable food products. This led to the people not performing these behaviors they were interested in. The study was outlined with the theory of planned behavior and it suggests that the determinants of intention can independently predict the intention to perform the behavior. In this research it was also figured that people who identified themselves as environmentally concerned or environmentally conscious, were more likely to have positive attitudes and beliefs toward sustainable consumption (Robinson & Smith, 2002).

## ***2.2. Previous research on sustainable consumption***

The research of sustainable consumption has grown its popularity and the area has been studied from many points of views. In the next chapter the discussions and findings of previous research that relate to the topic and questions of the thesis are displayed.

### ***2.2.1. The influence of social factors on young adults' consumption***

Social factors have an important part in forming the outline of consumer behavior and family is one of the most important factors in socializing the child. This is due to the fact that parents are usually the people who one meets first in life and who teach you the most things. Parents' effect on consumer and purchasing behavior has been studied by Wiese & Kruger (2016), who argue that parents do not necessarily influence on the purchase decision of a young adult, but rather has an effect on consumer behavior and therefore, influence on the purchasing indirectly. The research by Wiese and Kruger (2016) is outlined by the social cognitive theory, which suggests that the learning directly correlates with the role models in one's life, which in this case refers to one's parents. Although according to social cognitive theory, the role models can be any other of the family members, a teacher or even a celebrity. The celebrities being role models is often used in advertising successfully, which gives a suggestion that parents could also be direct role models in consumer behavior for their adult children (Wiese & Kruger, 2016). Although, all the previous research does not agree with the indication of parents as role models for their children. For instance, North and Kotze (2001) argue that children are very different from their parents nowadays and therefore do not see them as role models or value their opinions in consumer issues.

Wiese and Kruger (2016) also discussed in their research, that young adults are receptive for using new products even though the general brand choices and shopping patterns are learned from their parents. Therefore, an implication is made, that these bases could be used for brand extensions (Wiese & Kruger, 2016). Bravo et al. (2006) also researched the influence of the family on young consumers from two different approaches. It is studied from the point-of-view of their susceptibility of different types of products but also from the consequences the

parents produce in the young adults' consumer behavior. They state that parental influence leads to young consumers buying the same brands as their parents as well as even same products. It is argued that brand loyalty transfers from a parent to a child. In addition to buying same products, it is argued that family affects also on consumption patterns of the young consumers (Bravo et al., 2006).

### ***2.2.2. Factors influencing on sustainable consumption***

Salazar et al. (2013) studied the social impact on sustainable consumption, and they argue that very clear evidence was found that social environment has an effect on sustainability of the person's consumption. Salazar et al. (2013) argue that sustainable consumption research is mainly focused on the individual characteristics of a person and the influence of social factors are not taken into consideration enough. The research focused on influence of the person's colleagues, friends, and family and it states that all of these groups affect in different ways to the purchasing behavior of the individuals. Argument stated that individuals have specific groups to seek for advice and references, and that they do not follow other groups blindly in their purchasing choices. Individuals tend to seek references from groups with higher degree of social propinquity and their opinions have more weight in the individuals' buying behavior. These significant groups in the analysis were generally the groups of family and friends. The research also compared different kind of influences, including social learning and herd behavior. Individuals were much more likely to make sustainable choices if they had information that their friend had made the same choice. This suggests that sustainable consumption can also be a result of herd behavior and not only a result of social learning. Although, the research offers prove that social learning and impact is stronger and more stable in sustainable consumer behavior than herd behavior (Salazar et al., 2013).

Young adults' age has a very critical role when considering the patterns of the sustainable consumption of food. Fischer et al. (2017) researched the sustainable consumer behavior among teenagers (14-17 years) and surprisingly, patterns were not found, but rather the consumer behavior changed drastically for example related to the monetary situation. The study stated that the main criteria for the purchases of the teenagers was the low price and tastiness of the product and it almost never dealt with sustainability of the product. Fischer et al. also

included a point-of-view in their research that would the respondents consume differently if they had more money and in more than half of the cases the respondents were happy with their consuming and would not change their behavior even if given more money to spend on food. Therefore, it can be stated that giving more money for the teenagers would not alone change the consumption patterns towards more sustainable among them. The research also argued, that teenagers' interest in sustainability differs a lot from younger and older age groups, which highlights the importance of the age even further. It is stated that in the age between 14 to 17, the interest in the environmental and sustainable topics is decreasing a lot and it is significantly lower than in the other age groups. (Fischer et al., 2017)

The sustainable consumer behavior of young adults is previously also researched from the point-of-view of the spirituality and religiosity of the consumer by David Lee et al. (2016). The study defines religiosity to be an institutionalized set of attitudes, beliefs, and practices, whereas spirituality is defined to be something more personal that describes the relationship between an individual and a higher power. Spirituality is argued to describe the inner life of an individual, which would suggest that the spirituality of the consumer influences on the consumer behavior of the individual positively. (David Lee et al., 2016) In the past years, the interest in spirituality has been rising and the interest in traditional religions have been decreasing among young adults, according to a survey of college-aged Americans (Overstreet, 2010). The research by David Lee et al. indicates that religiosity is widely researched in many other fields of study, but the influence of religiosity on consumer behavior has not been appreciated. Although, some studies suggest that the religiosity of the consumer can actually be the key indicator in one's culture, which will impact on both, the purchasing behavior of the consumer but also the purchasing intentions (Essoo & Dibb, 2004). David Lee et al. (2016) indicated in the research that the level of spirituality of the consumer has a positive effect on sustainability of the consumer behavior. However, the religiosity of the consumer does have positive influence on the behavior only to a limited degree and after that it is not significant. (David Lee et al., 2016)

Sustainable consumption is also affected by for example the educational level of the consumer and it is suggested that people with higher education are more likely to buy sustainably produced food. It also deals with the fact that highly educated people tend to have higher income

and the increasing income level of the consumers also influences positively on the green consumption.

### ***2.2.3. Research on family's effect on sustainable food consumption***

Chwialkowska (2018) researched adopting vegan diet in the family and the continuance of following it when moving out of the childhood home. Through the point-of-view of vegan diet, which is considered very environmentally friendly food diet, the sustainable consumption of food is analyzed among the young consumers. The research was a long-term study in analyzing the adoption of vegan diet from childhood and moving it into the adulthood in an own home away from parents. It is stated in the research that as a family functions on its own, the members of the family usually conform each other's dietary choices in order to avoid conflict, which is why the dietary choices may change a lot when a young adult moves out of the house. This usually influences the children to adapt to their parent's dietary choices, rituals, and routines regarding food consumption (Chwialkowska, 2018). It is also studied that parents have an influence especially on the children's knowledge on food and parents are the domain influencer of their children's choices between healthy and unhealthy food (Matthies & Wallis, 2015).

The perceived interdependence or the identity of the family are not strong enough determinants to make the dietary choices of the parents last into the adulthood of the children and for example the knowledge of the food is not generally related to food preferences (Matthies & Wallis, 2015; Chwialkowska, 2018). The argument defining this states that the mere compliance of the dietary choices of the parents and vegan diet does not mean that the sustainable consumption itself is internalized by the children and that it requires more than just following the diet in the childhood to socialize to sustainable consumption patterns. The values of the sustainability need to be integrated to one's identity and self to continue the sustainable food consumption and vegan diet in the adulthood. To conclusion, the research indicates that when young adults move out of their parents' house, the vegan diet and therefore, sustainable food consumption, is only continued if the motives are internal. (Chwialkowska, 2018)

### 3. Methods

The research is conducted by using quantitative methods and the data for the research was collected by using an internet-based survey, which was formed by using Qualtrics – survey platform. The survey was sent to around three hundred people from the target group of Finnish 18-25-year-olds living on their own. The survey was sent through an anonymous link and the answers of the respondents cannot be in anyway connected with the specific respondents. To collect enough significant data for the research, course lists of LUT University courses were used as a tool to send the anonymous link for representatives of the target group of the study, meaning Finnish young adults. The university course lists were used, because it can be made a supposition that university students are young adults living on their own. Although, there might also be some older students in the university, the amount of them is not that significant that it would affect to the results or make them unreliable.

#### 3.1. *The survey*

The items of the survey were not based on any previous literature on sustainable consumption, but rather different dimensions of sustainability and sustainably produced food were used to form the items. *Kuluttajaliitto* (2021) worked as an inspiration for the items since the webpage included different ways to eat sustainably, including for instance: reducing the usage of dairy products and meat, eating vegetables based on their harvest seasons and favoring locally produced foods. Based on the different ways to eat sustainably, items were formed of them: always one discussing the behavior or attitude of the respondent and one similar discussing the behavior or attitude of the respondents' parents. The items were formed similarly of the respondents' and their parents' attitudes and behavior to make the data as comparable as possible.

There were three items in the survey to explain attitudes of the parents regarding sustainable consumption and three items explaining the attitudes of the young adults regarding sustainable consumption. In addition, the survey included 30 items of which half discussed the behavior of the parents in the childhood and half the behavior of the young adults. The items were

answered in 1 to 5 Likert –scale, where one meant that the item did not fit to the respondents' life at all and five meant that the item fit to the life of the respondent completely.

### ***3.2 Background information of the respondents***

The data for the research was gathered during one week in March of 2021 and the survey was answered by altogether 182 respondents. The survey contained three basic questions of the respondents' background, which included questions of their age, sex, and highest degree of education.

The respondents of the survey are quite evenly men and women as men cover circa 54 percent of the respondents and women cover circa 46 percent. The survey also had an option of having other gender than man or woman, but it was not chosen by any of the respondents and therefore the option will be completely ignored in analyzing the results.

Over half of the respondents were 20- or 21-year-olds, which was expected since many of the Finnish young adults move out of their parents' house around those ages to start studying in a university in a different city. The second most represented age group is 22- to 23-year-olds, which was almost one fourth of the respondents. Other age groups, 18-19 years, 24-25 years and over 25 years, are all under ten percent of the respondents.

All of the respondents have either high school or university as their highest degree of education. High school and university also both have an alternative choice of vocational school and university of applied sciences to be chosen, but since the anonymous link was sent through university course lists, it is expected that most of the respondents have a background in high school and university rather than the alternative choices.

The age of the respondent or the degree of education of the respondent are not expected to influence on the results highly, since the different age groups are all very close to each other and supposedly almost all of the respondents have quite similar background on education. However, these variables will still be used as control variables in statistical tests.

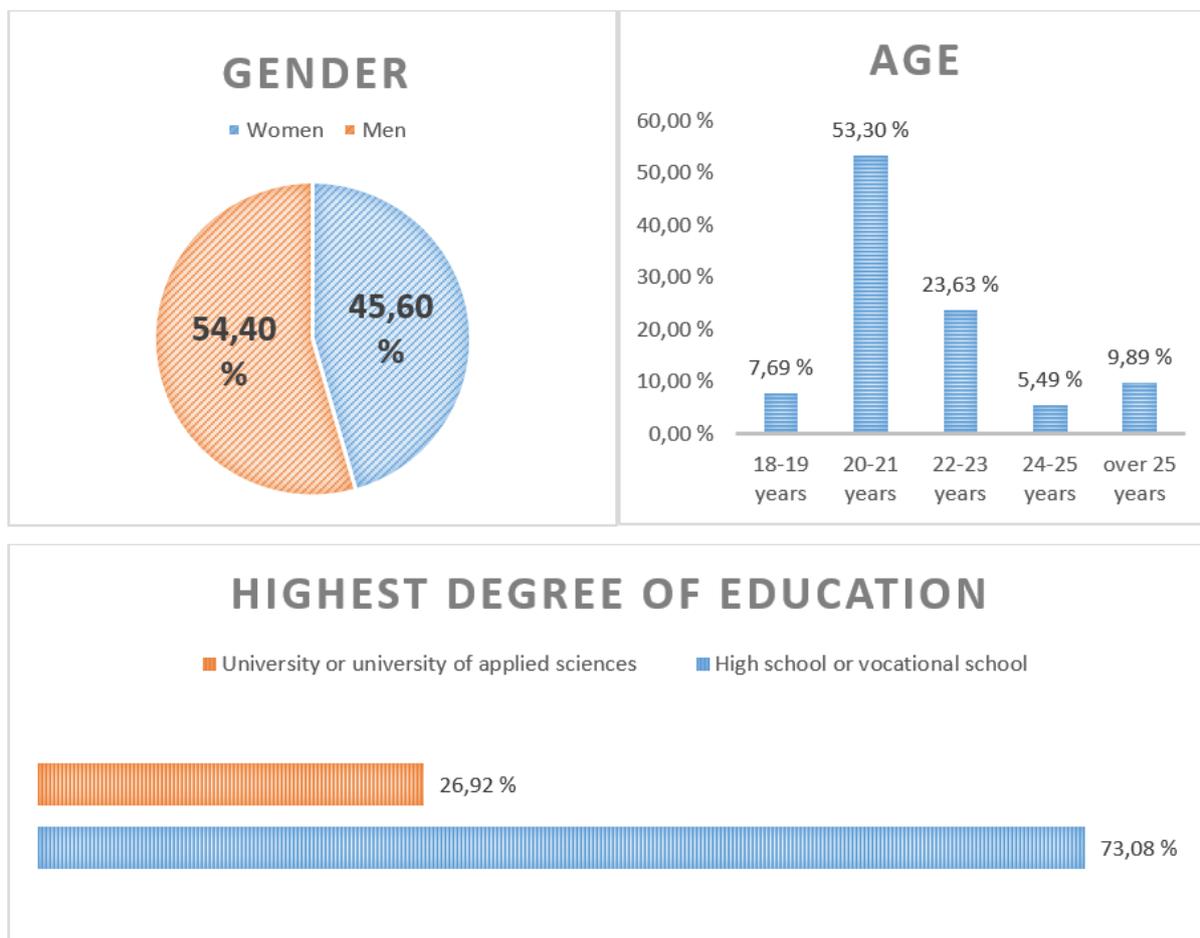


Figure 2: Gender, age and highest degree of the respondents visualized

### 3.3 The items

In addition of the three background questions the survey contained of 36 items, which of half were associated with the consumption in the respondents' childhood and half were items about their consumption nowadays. The items focused on topics of sustainability and consuming sustainable and non-sustainable food. The items are represented in the table 1 and they are divided into four different groups based on the factor that they are trying to explain.

Table 1: The items of the survey

Groups	The item
Parents' attitudes	My parents were interested in sustainable consumption in my childhood.
	My parents educated me about sustainable consumption in my childhood.
	My parents were worried about the environmental influence of their consumption.
Parents' behavior	Lot of meat was consumed in my family in my childhood.
	Lot of dairy products were consumed in my family in my childhood.
	Vegetarian food was often eaten in my family in my childhood.
	Someone of my family was vegetarian or vegan.
	Attention was paid to the domesticity of the food products.
	Domestic food products were used a lot in my family in my childhood.
	I was encouraged to eat a lot of vegetables in my childhood.
	Attention was paid to the harvest season of the food products in my childhood.
	Food products were used by their harvest season in my childhood.
	Organic products were used in my family in my childhood.
	My parents talked about the sustainability of the food.
	My parents chose food products based on the sustainability.
	My parents favored local food products.
	Same food products were often used in my family in my childhood.
I mostly liked the food products that were eaten in my family.	
Respondent's attitude	I am interested in sustainability.
	I think my consumer behavior is sustainable.
	I am worried about the environmental influence of the food products I use.
Respondent's behavior	I use a lot of meat.
	I use a lot of dairy products.
	I often eat vegetarian food.
	I am vegan or vegetarian.
	I pay attention to the domesticity of the food products.
	I use a lot of domestic food products.
	I use a lot of vegetables.
	I pay attention to the harvest seasons of the food products.
	I use products based on their harvest seasons.
	I use organic food products.
	I pay attention to the sustainability of the food.
	I choose food products based on their sustainability.
	I favor local food products.
	I often buy same food products.
I often buy same food products as my parents in my childhood.	

## **4. Empirical analysis of the data**

In the following chapter statistical tests are conducted to analyze the gathered data intending to response the research question. Statistical tests include factor analysis, which helps to group the variables to functioning factors and linear regression, which intends to explain relationships between these factors.

### ***4.1 Factor analysis***

Factor analysis is a statistical technique, which aims to reduce large number and make fewer new variables of them. Factor analysis functioning is based on maximum common variances of the variables and putting them into common score. Factor analysis has background assumptions, which need to be checked for the factors to function as they are supposed to. (Statistic Solutions, 2021)

#### ***4.1.1 Conducting the analysis***

The items were based on four different groups, the attitudes of the parents, the behavior of the parents, attitudes of the respondents and behavior of the respondents. Factor analysis was conducted on both behavior of the parents and behavior of the respondents. In addition, factor analysis was conducted for the attitudes of the respondents and parents together. The factor analysis was conducted by using principal-component factors and to interpret the results it was used orthogonal varimax rotation. In the rotation all of the variables under (.35) loadings were left out. The goal of the factor analysis was to create factors, which are easier to compare to each other than single items.

#### ***4.1.2 Parents' behavior***

The behavior of the parents was found to divide into three different factors, which were named based on the elements of the items included in the factors. The factors based on the parents' consuming were called childhood sustainable food, childhood vegetarian food and

childhood vegetables. The results of the factor analysis are represented in the table 2. Childhood sustainable food factor include items of parents' usage of local food, domestic food, and organic food as well as them paying attention to sustainability and using sustainable products. Instead, the factor of childhood vegetarian food was about the items using little dairy products and meat. In addition, third factor was formed, which was based on using a lot of vegetables and using them based on their harvest seasons.

Table 2: Factor analysis on parents' behavior

Variable	Rotated factor loadings				
	Factor 1: Childhood sustainable food	Factor 2: Childhood vegetables	Factor 3: Childhood vegetarian food	Com- munal- ity	MSA
Little meat was consumed in my family in my childhood.			0,789	0,642	0,650
Little dairy products were consumed in my family in my childhood.			0,849	0,724	0,629
Attention was paid to the domesticity of the food products.	0,868			0,776	0,762
Domestic food products were used a lot in my family in my childhood.	0,839			0,772	0,748
I was encouraged to eat a lot of vegetables in my childhood.		0,714		0,550	0,899
Attention was paid to the harvest season of the food products in my childhood.		0,919		0,876	0,695
Food products were used by their harvest season in my childhood.		0,902		0,859	0,712
Organic products were used in my family in my childhood.	0,686			0,552	0,917
My parents talked about the sustainability of the food.	0,618		0,448	0,686	0,808
My parents chose food products based on the sustainability.	0,609		0,450	0,680	0,831
My parents favored local food products.	0,806			0,706	0,932
Eigenvalue	4,670	1,624	1,529		
Cum. %	42 %	57 %	71 %		
Cronbach $\alpha$	0,874	0,848	0,707		
Inter-item r	0,63-0,72	0,60-1,39	0,255		
Item-test r	0,74-0,83	0,74-0,94			

The three factors explain cumulatively 71% of the variation of the variables, which is a good amount. Factors with eigenvalue higher than one were chosen based on the analysis, since they explain more of the variation of the variables than a single variable. Altogether four variables were needed to leave out of the analysis since they did not clearly load to any of the factors, but rather had low loadings or loaded a lot on many factors.

The reliability of the factors was analyzed with the Cronbach alpha and all of the factors were found to exceed the target level (.06). Also, the reliability was analyzed with item tests and all of the correlations were high. Based on the Cronbach alpha and item tests, the factors can be seen as reliable. To ensure the validity of the factors a correlation review was conducted with a Pearson correlation matrix, which is similar to the multitrait – multimethod matrix (Appendix 1). Based on the correlation matrix the validity is good since the variables on the factors correlate more with each other than the variables on the other factors.

#### ***4.1.3 Respondents' behavior***

The behavior of the respondents was also divided into three factors based on the rotated loadings on the factor analysis. These factors were named similarly than the factors of the parents' behavior, based on the variables of the factors. The first factor, sustainable food, included variables based on items of using local, organic, and domestic food and paying attention to the sustainability of the food products as well as buying food products based on the sustainability. The second factor, vegetarian food, was based on variables of being vegan, eating a lot of vegetarian food and using a little meat and dairy products. Third of the factors, vegetables, was formed of items of using a lot of vegetables and the sustainability aspect of them, using them based on their harvest seasons and paying attention to them.

The factors cover cumulatively altogether 69% of the variation of the variables, which is considered a good amount. Factors with eigenvalue higher than one were chosen based on the analysis, but not all of the variables could be included. The variables regarding usage of same products than parents were not loading clearly on any of the factors and therefore needed to be left out.

Table 3: Factor analysis on respondents' behavior

	Rotated factor loadings:				
Variable	Factor 1: Sustainable food	Factor 2: Vegetarian food	Factor 3: Vegetables	Communal- ity	MSA
I use little meat.		0,880		0,821	0,713
I use little dairy products.		0,596		0,356	0,676
I often eat vegetarian food.		0,793		0,744	0,770
I am vegan or vegetarian.		0,696		0,489	0,818
Attention was paid to the domesticity of the food products.	0,751		0,359	0,737	0,800
Domestic food products were used a lot in my family in my childhood.	0,772			0,731	0,751
I use a lot of vegetables.		0,413	0,578	0,580	0,900
I pay attention to the harvest seasons of the food products.			0,918	0,898	0,703
I use products based on their harvest seasons.			0,914	0,876	0,685
I use organic food products.	0,696			0,572	0,933
I pay attention to the sustainability of the food.	0,787			0,727	0,810
I choose food products based on their sustainability.	0,769	0,383		0,745	0,807
I favor local food products.	0,812			0,702	0,898
Eigenvalue	5,04	2,45	1,49		
Cum. %	39 %	58 %	69 %		
Cronbach $\alpha$	0,880	0,78	0,84		
Inter-item r	0,60-0,66	0,43-0,77	0,68- 0,72		
Item-test r	0,72-0,83	0,64-0,92	0,73-0,94		

The reliability of the factors was reviewed with Cronbach alpha and item tests and the reliability was found to be good since Cronbach alpha of the factors was higher than the target level (.06) and the item tests were high. The validity of the factors is tested with Pearson correlation matrix (Appendix 1) and the mean correlation of variables is higher in the same factor than between the variables in different factors, which means that the factors are valid.

#### 4.1.4. Attitudes

Factors were also formed based on the parents' and the respondents' attitudes. Only one factor analysis was conducted on all of the items that discussed the attitudes and as expected, two factors were formed, the factor of parental attitudes and the factor of the respondent's

attitudes. The factors were named as parents' attitudes and attitudes, the latter meaning the respondents own attitudes. These factors explain cumulatively 77% of the variation of variables, which is high enough to use the variables representing the attitudes. All of the variables of the item group of attitudes could be included in the factors and none of them needed to be left out. In addition, communality values are all quite high, which means that the variables are all relevant in the analysis.

*Table 4: Factor analysis on the attitudes*

	Rotated factor loadings			
<b>Variable</b>	<b>Factor 1: Parent's attitudes</b>	<b>Factor 2: Attitudes</b>	<b>Communality</b>	<b>MSA</b>
My parents were interested in sustainable consumption in my childhood.	0,915		0,861	0,708
My parents educated me about sustainable consumption in my childhood.	0,905		0,844	0,716
My parents were worried about the environmental influence of their consumption.	0,872		0,765	0,824
I am interested in sustainability.		0,891	0,804	0,634
I think my consumer behavior is sustainable.		0,726	0,600	0,763
I am worried about the environmental influence of the food products I use.		0,851	0,725	0,660
Eigenvalue	2,974	1,624		
Cum. %	50 %	77 %		
Cronbach $\alpha$	0,892	0,778		
Inter-item r	0,82-1,04	0,43-0,67		
Item-test r	0,87-0,93	0,77-0,88		

The Cronbach alphas and item tests were relatively high, which means that the factors are reliable. However, inter-item tests were low at some variables, but leaving out any of the variables out would not have been better for the whole analysis. In addition, the Pearson correlation matrix proves the factors to be valid (Appendix 1).

## **4.2 Linear regression analysis**

Linear regression analysis, which is a statistical model with linear approach, attempts to model the relationship between an independent and dependent variable. It is used to analyze, which variables are significant in predicting the regression's dependent variable. Linear regression analysis can be conducted with several independent variables or with only one independent variable and one dependent variable. (Statistic solutions, 2021)

### **4.2.1 Linear regression on the attitudes**

The linear regression is first conducted to answer the first sub question of the research: *“To what extent are the young adults more likely to have positive attitudes towards sustainability of food if their parents had positive attitudes towards sustainability of food?”* and therefore, the dependent variable of the analysis is the attitude of the respondent, which is explained with the attitude of the parents. The factors of respondents' attitude and parents' attitude were created in the factor analysis and proved as functioning, which allows using them as variables in this analysis. Three control variables were used in the analysis to explain the dependent: age, degree of education and gender.

The respondents' attitudes and their parents' attitudes were depicted with histograms (Appendix 2) and they seem to divide very differently as the respondents' attitudes are more centralized in the higher end of the Likert scale, whereas the parents' attitudes are more centralized in the middle and the lower end of the scale. The correlation matrix of the parents' attitudes and the respondents' attitudes only shows quite little correlation (.296) between the variables (Appendix 3).

The regression is performed as least-squares linear regression and checking if the model meets the assumptions of the linear regression model, graphical illustrations and statistical tests are conducted. All of the assumptions are tested between the dependent and independent variable, but also with the control variables. If the regression model does not meet the assumptions the results of the analysis may be misleading.

The results of the linear regression analysis are displayed in the table 5 and it shows that the r-squared of the analysis is (.1610), which means that the attitudes of the parents together with the gender, age and degree of education explain altogether of 16,10% of the respondents' attitudes. Although, the adjusted r-squared is only (.1420). In the model, only the gender of the respondent and the attitudes of the parents are statistically significant variables. The standardized regression coefficient of the parents' attitudes was (.31) and for the gender it was (0.259). This means that the attitudes of the parents affect more on the attitudes of their children than their gender. Although, both affect to the attitudes of the respondents clearly. The attitudes of the parents have a positive effect on the respondents' attitudes, and it means that if the parents' attitudes were more positive, the respondents' attitudes tend to be more positive also. As the gender is a dummy variable and it is used the woman variable in this analysis, women are coded as 1 and men are coded as 0. Thus, the results of the analysis imply that being a woman has a positive effect on the attitudes towards sustainable consumption.

*Table 5: The results of the linear regression analysis on attitudes*

<i>Dependent:</i>	<b>Attitudes</b>				
	$\beta$	t	p	Standardized regression coefficient	Effect size
Constant	<b>2,90</b>	<b>9,39</b>	<b>0,00</b>		
<i>Independent</i>					
Parents' attitudes	<b>0,25</b>	<b>4,40</b>	<b>0,00</b>	<b>0,31</b>	<b>0,104</b>
<i>Demographic</i>					
Gender:					
Woman	<b>4,24</b>	<b>3,76</b>	<b>0,000</b>	<b>0,259</b>	<b>0,073</b>
Age	-0,03	-0,48	0,629	-0,043	0,001
Education:					
High school	-0,122	-0,93	0,355	-0,75	0,004
F	<b>7,76</b>				
df	<b>(4, 176)</b>				
R-squared	<b>0,1610</b>				
Adj. R-squared	<b>0,1420</b>				
<i>Tests</i>					
RESET-test p	0,2263				
Breusch Pagan & Cook-Weisberg test p	0,0006				

To further interpret the linear regression, a statistical test is conducted to measure the effect sizes of the variables. The results of the test are displayed in the table 5 and it further confirms the fact that the attitudes of the parents (.10) have large effect on the attitudes of the young adults and the respondent being female has a medium effect (.07). The age or the degree of education of the respondent are again not statistically relevant.

The background assumptions of the linear regression include five key assumptions, which are tested to confirm the functioning of the model. The value of the Ramsay's RESET test (.2263) is higher than the risk level (.05), which means that not any variables are missing from the analysis. However, the Breuch Pagan & Cook-Weisberg test, which is used to test the homoscedasticity of the model, did not meet the expected level and the model needed to be modified with standard-error calculations. The background assumptions also include linear relationship between the dependent and the independent variable, which is displayed in the appendix 4. The relationship between the parents' attitudes and the respondents' attitude is relatively linear and therefore validates to this analysis and the relationship between the gender and the respondents' attitudes is very well in the line of linearity. Also, the model is not supposed to have multicollinearity (Appendix 6) or auto-correlation (Appendix 5), which are both proven to be true. Lastly, the normality of the residuals was tested, with graphic figuring and Shapiro-Wilk test and the residuals are proven to be normal (Appendix 7). Although, the normality of the residuals is not a necessity that linear regression analysis functions.

#### **4.2.2 Linear regression on sustainable consumption**

Linear regression is also conducted to explain the connection between parents' sustainable consumption and the respondents' sustainable consumption. Thus, the linear regression intends to answer the second sub question of the research: *To what extent are young adults more likely to make sustainable choices on their consumption of food, if their parents bought sustainably produced food, when they were young?*

The linear regression is conducted by using the factors formed in the factor analysis and therefore, the dependents to be explained relate to the respondents' behavior. The dependents are vegetarian food, sustainable food, and vegetables and each of them are explained with

independent relating to it from one's childhood. Thus, vegetarian food is explained with vegetarian food in childhood, sustainable food is explained with sustainable food in childhood and vegetables -variable is explained with vegetables in childhood. In addition, all of the dependents are explained with three demographic variables: gender, age, and education. Although, age and degree of education are not statistically significant in any of the cases.

The results of the linear regression are displayed in the table 6. The respondents' usage of vegetarian food is best explained with the gender of the respondent as the standardized regression coefficient is (.389) and the standardized regression coefficient of the vegetarian food in one's childhood is only (.170). The positive value of the gender -variable describes the fact, that women make more vegetarian choices regarding food than men and the positive value of the vegetarian food of the respondent's childhood means that it influences positively on similar consumer behavior regarding the respondent. Nevertheless, both of these variables are statistically significant, and the independents altogether explain 18,58% of the dependent. The adjusted r-squared is 16,73%. The effect size calculations further confirm that the usage of vegetarian food is more influenced by the gender of the respondent (.17), which has large effect on the dependent, than the experiences of vegetarian food usage in the respondent's childhood (.03). The vegetarian food in childhood only has a small effect on the dependent (Appendix 8).

*Table 6: Linear regression table – sustainable consumption*

<i>Dependent:</i>	Vegetarian food			Sustainable food				Vegetables				
	$\beta$	t	p	Beta	$\beta$	t	p	Beta	$\beta$	t	p	Beta
Constant	1,917	6,130	0,000		1,345	4,240	0,000		1,060	8,840	0,000	
<i>Independent</i>												
Vegetarian food in childhood	0,263	2,720	0,007	0,170								
Sustainable food in childhood					0,485	7,550	0,000	0,500				
Vegetables in childhood									0,536	8,840	0,000	0,510
<i>Demographic</i>												
Gender: Female	0,721	5,500	0,000	0,389	0,167	1,480	0,140	0,098	0,742	5,950	0,000	0,346
Age	0,015	0,230	0,820	0,017	0,091	1,400	0,164	0,113	-0,028	-0,400	0,692	-0,028
Education: High school	0,819	0,490	0,593	-0,157	-0,050	-0,370	0,874	-0,029	-0,176	-0,170	0,244	-0,082
F		10,59				14,62				32,14		
df		(4, 176)				(4, 176)				(4, 176)		
R-squared		0,1858				0,2495				0,4221		
Adj. R-squared		0,1673				0,2324				0,409		
<i>Tests</i>												
RESET-test p		0,2097				0,638				0,3096		
Breusch Pagan & Cook-Weisberg test p		0,0007				0,6225				0,1055		

Secondly, the linear regression was conducted to explain the consumption of generally sustainable food and the model explains almost 25% of the sustainable food consumption of the respondents. The adjusted r-squared, which takes into consideration the number of predictors in the model, is also quite high (.2324). However, the only significant predictor of the model is the usage of sustainable food in the childhood, and its value of standardized regression coefficient is (.500). The effect sizes further interpret that the usage of sustainable food in respondent's childhood (.25) has a very large effect on the dependent (Appendix 8). None of the demographic variables are significant in the analysis.

The third predicted variable, vegetables, is best predicted with the usage of vegetables in one's childhood, but it is also affected by the respondent's gender. The standardized regression coefficient of vegetables in childhood is (.510) and the standardized regression coefficient of one's gender is (.346). The r-squared of the model is 42,21% and the adjusted r-squared is 40,90%, which means that the variables explain almost half of the behavior of the respondents regarding the usage of vegetables. The effect size calculations also suggest that the usage of vegetables and the gender of the respondent have an influence on the usage of vegetables in respondents' life and also that the effect of the childhood is higher in the case, even though both of the independents have large effect (Appendix 8).

The linear analyses are valid since they do not include autocorrelation (appendix 9) or multicollinearity (appendix 10). The dependent and independent variables also have linear relationships (appendix 12), which is a necessity. However, only the residuals of the sustainable food regression are normal (appendix 11), but this is not a barrier for the analyses to function. The value of the Ramsay's RESET -test regarding vegetarian food (.2097) is higher than the risk level (.05), which means that the model is not missing any variables. However, the Breuch Pagan and Cook-Weisberg -test did not meet the expected level (.05) and the model was modified with standard-error calculations. The values of the RESET -test (.638) and the Breuch Pagan and Cook-Weisberg -test (.6225) regarding sustainable food –factor exceed the risk level (.05), which means that the model is not missing variables and it did not need to be modified relating to heteroscedasticity. The vegetables model also did not need to be modified, since the values of the RESET-test (.3096) and the Breuch Pagan and Cook-Weisberg -test (.1055) were higher than the risk level (.05).

### **4.2.3. Linear regression on young adults' usage of products**

Linear regression analysis is also conducted to answer the third sub question of the research: *To what extent do the young adults favor the food products their parents bought home when they were young?* In this analysis the dependent variable is based on the item: *I often buy same food products as my parents in my childhood.* The independents which are to explain the dependent are the factors childhood vegetarian food, childhood sustainable food and childhood vegetables, which were formed in the factor analysis. In addition to these, the dependent is explained by the variable based on the item: *I mostly liked the food products that were eaten in my family.* Control variables, gender, age, and degree of education, were not used in the model.

The results of the linear regression analysis are displayed in the table 7. The linear regression has two significant variables, which explain young adults' likelihood to buy same food products as their parents. The significant variables in the model are sustainable food in the respondents' childhood and the respondent liking food products in their childhood. Sustainable food in childhood has higher standardized regression coefficient value (.26), than liking food in the childhood (.17), which means that sustainable food explains buying same food products with parents better. The variables in the model explain altogether of 14,74% of the variation of the dependent and the adjusted r-squared is 12,80%.

Table 7: Linear regression – young adults' usage of products

<i>Dependent:</i>	Buying same products as parents			Standardized regression coefficient
	$\beta$	t	p	
Constant	0,80	1,61	0,11	
<i>Independent</i>				
Liking food products in childhood	<b>0,24</b>	<b>2,35</b>	<b>0,02</b>	<b>0,17</b>
Vegetarian food in childhood	0,08	0,58	0,56	0,04
Sustainable food in childhood	<b>0,32</b>	<b>0,71</b>	<b>0,00</b>	<b>0,26</b>
Vegetables in childhood	0,06	1,61	0,11	0,06
F	<b>7,61</b>			
df	<b>(4, 176)</b>			
R-squared	<b>0,1474</b>			
Adj. R-squared	<b>0,1280</b>			
<i>Tests</i>				
RESET-test <i>p</i>	<b>0,4635</b>			
Breusch Pagan & Cook-Weisberg test <i>p</i>	<b>0,4681</b>			

The effect sized of the model suggest that none of the independent variables have very big effect on the dependent variable. According to the tested effect sized the sustainable food in childhood (.05) has medium effect to the dependent and liking food in childhood (.03) has a small effect. Both, using vegetables in childhood (.003) and vegetarian food in childhood (.002) had smaller influence on the dependent than what is defined as small effect (.01). (Appendix 13)

The functioning of the model was tested with RESET-test (.4635) and it ensured that the model is not missing any variables. In addition, the homoscedasticity of the model was tested with Breuch Pagan and Cook-Weisberg test (.4681) and the model did not need to be modified. The other background assumptions of the model are tested as well, and the model should not be misleading. The relationships between the dependent and independent variables could be even more linear, but they are linear enough to use the linear regression model (Appendix 14). All other of the background assumptions of the model, multicollinearity, independence of the residuals and normality of the residuals, are well in line of what they are supposed to be (Appendices 15, 16 and 17).

## 5. Conclusions

In this chapter is concluded the findings of the empirical analyses of the data, but also discussed the findings and the possible reasons for them. The possible limitations of this study are analyzed as well as the possibilities and future implications of this topic.

### 5.1. Attitudes towards sustainable consumption

The first sub question of the research: *To what extent are the young adults more likely to have positive attitudes towards sustainability of food if their parents had positive attitudes towards sustainability of food?* deals with the attitudes of the respondents and the extent that parents' attitudes in the childhood affect to this at this day. It was intended to find out that how much parents' attitudes explain the attitudes of the young adults, but also if the control variables have significant influence on the attitudes. Linear regression was conducted and the functioning of it was ensured.

The attitudes of the parents and the control variables was found to explain circa 16 percent of the variation of the variable. The degree of explanation is not very high, but the variables have very clearly explanatory power over the dependent. The independent of the model, parents' attitudes especially, explains the dependent well. As the parents' attitude -variable includes item of educating their children of sustainable consumption, it is very natural, that it has an effect on their children's sustainable consumption. In addition, if children heard their parents being worried about the environmental impact of their consumption or their interest in sustainability, children may easily have picked on that and transferred at least some of that into their own lives. Furthermore, previous research indicates that parents as role models have bigger influence on the children than actually trying to control their behavior, which highlights the behavior of the parents rather than their attitudes (Scaglioni, Salvioni & Galimberti, 2008).

However, the gender of the respondent also has medium influence on their attitude. It is displayed in the model that women tend to have more positive attitudes towards sustainability

than men. This may be due to the fact, that plant-based diets are generally considered as less masculine than meat-diets. Men might even fear of losing part of their masculinity or masculine place in a social group, if they define themselves as vegetarians or refuse to eat meat. These stereotypes easily reflect on people's attitudes (Modlinska, Adamczyk, Maison & Pisula, 2020).

## **5.2. Sustainable consumption of young adults**

The second linear regression analysis was conducted to answer the second sub question of the research: *To what extent are young adults more likely to make sustainable choices on their consumption of food, if their parents bought sustainably produced food, when they were young?* and it intended to explain the relationship between different sustainable food factors and similar factors of sustainable food usage in their childhood. The factors, which were used to define sustainable food consumption, were formed in the factor analysis, and named as vegetarian food, sustainable food, and vegetables. Similarly, three factors of the parents' sustainable food consumption were formed. These are called childhood vegetarian food, childhood sustainable food and childhood vegetables. The factors relating to vegetarian food define using little dairy products and meat, whereas the factors of sustainable food include several aspects of sustainability: local food, domestic food, and generally sustainable food. The vegetable factors define people's usage of vegetables, but also using them by their harvest seasons.

### **5.2.1. Influence on consuming vegetarian food**

The usage of vegetarian food was explained with the usage of vegetarian food in the young adults' childhood, but also with the control variables. All of these together were found to explain little over 18% of the variation of the variable. However, the gender of the respondent affects way more on the variable than childhood practices relating to it. The results of the research interpret that being a woman has a positive influence on consuming vegetarian food. The reasons for the differences between men and women regarding the usage of vegetarian food may be influenced by the same reasons than the attitudes: men might think it is less

masculine to be vegetarian. In addition, it is found in a previous research that omnivores tend to have prejudice against vegetarian foods, but also people who identify themselves as vegetarians. In previous study it has been stated that men are also very motivated to avoid products that do not associate with their social groups or images of themselves. Men have also found to have been called names or mocked because of following vegetarian diet, which further explains the difference between men and women in the study. (Modlinska et al., 2020)

Childhood vegetarian food also influences on the vegetarian food usage of the young adults. There is a positive correlation between the variables and therefore, if the parents brought home vegetarian food or only a little meat or dairy products were consumed in one's childhood, it is more likely that the young adults will consume similarly. Although, the explanatory level is not very high, and the childhood vegetarian food only has a small effect to young adults' usage of vegetarian food. This is due to the fact that veganism or vegetarianism needs internal motives to be continued in the adulthood (Chwialkowska, 2018).

### ***5.2.2. Influence on consuming sustainable food***

The sustainable food usage of the young adults was explained with sustainable food usage in one's childhood and control variables, and the explanatory level of the model was found to be almost 25%. However, the control variables in the model were not significant, but rather the variable describing the consumption of sustainable food in childhood was very significant in the model.

The childhood practices relating to consuming sustainable food have very large effect on consuming sustainable food as a young adult. As the sustainable food factor is formed of buying for example local food, domestic food, and generally sustainable food, it is natural that the children pay attention to these factors if their parents have paid attention to these. In households that it has not been talked about for example, the domesticity of the food, the young adult may not realize to check the domesticity when buying food, whereas for someone it might be an automation to check if the food is domestic if it has been taught them in their childhood. In addition, buying generally sustainable food is not a diet to follow, but almost any

diet can be followed as more sustainable version. Therefore, it does not require as much internal factors to buy sustainable food as for example buying and eating vegetarian food.

### ***5.2.3. Influence on consuming vegetables***

Vegetables relate to sustainability especially through harvest seasons of them, but also consuming a lot of vegetables is usually a part of healthy diet since they have association with lower probability of chronic diseases (Del Río-Celestino & Font, 2020). The young adults' usage of vegetables was explained with the usage of vegetables in childhood, but also with three control variables. The variables were found to explain over 40% of the usage of vegetables of the young adults and in addition to the vegetable usage in childhood, the gender of the respondent was significant in the model.

The childhood usage of vegetables has a very large effect on the usage of vegetables as a young adult. The vegetables -factors are formed of using vegetables by their harvest seasons and paying attention to harvest seasons in addition to using a lot of vegetables. The harvest seasons of the vegetables are not nowadays familiar for everyone since vegetables are usually available in the stores all year around. Although, vegetables are generally cheaper when it is their harvest time and in addition to saving the environment, one can save money. Nevertheless, the positive influence of parents as role models on children's consumption of fruit and vegetables has been proven in previous research. However, general encouragement also plays a big part in the consumption of fruit and vegetables (Pearson, Biddle & Gorely, 2009).

The usage of vegetables was also significantly explained with the gender of the respondent. Women tend to pay relatively more attention to the harvest seasons of the vegetables, but also consume them more. It has been discussed in previous research, that men have less favorable attitudes towards consuming vegetables and for example social norms do not increase the intentions of vegetable consumption. Thus, the consumption of vegetables among men is generally in a low level and the consumption of vegetables among women have found to be higher. (Emmanuel, A. S., McCully, S. N., Gallagher, K. M. & Updegraff J. A.; 2012)

### **5.3. The influence on buying same food products as parents**

There was also conducted linear regression to answer the third sub question of the research: *To what extent do the young adults favor the food products their parents bought home when they were young?* Four dependent variables were used to explain buying same products as parents in one's childhood. The dependent variables were liking the food in childhood, childhood vegetarian food, childhood sustainable food and childhood vegetables. It was found that these variables together explain almost 15% of the variation of buying same products as parents in childhood. Although, only liking food in childhood and sustainable food in childhood were found to be significant regarding the usage of same food products.

It is very logical, that if one generally liked the food in their childhood, they are more likely to buy same products as they live on their own also. If the food in the childhood would have been bad, it would be absurd if one still would like to buy same products in their adulthood. Although, there is a possibility that one would like to buy the same products than their parents, but still make different food of it. Generally liking the food in the childhood only had small effect on buying same products as their parents.

Sustainable food in childhood was found to have a medium effect to young adults buying same products as their parents and thus, the effect of sustainable food is bigger than liking the food in childhood. This connects with the fact that the sustainable food in childhood influences a lot to the sustainable food usage in adulthood and therefore also the used products may be the same with parents.

### **5.4 Limitations of the study**

The group of respondents was very limited, which influences a lot to the results of the study. The background of all of the respondents was very similar, since almost all of them were students at the same university and same major. It can also be a good thing regarding the modelling, that the degree of education did not have an influence on the results, but to have wider results, respondents with background in for example vocational school might have enriched

the answers. Regarding the background, the study also had very little respondents who identified themselves as vegans or vegetarians, but rather most of the respondents were mixed eaters or omnivores. If there would have been more vegetarians or vegans as respondents, it might have influenced especially on the vegetarian food factor and changed the answers. In conclusion, the biggest limitation was the limited respondent group, and the problem would have been solved if there would have been a lot more respondents. Although, this would have required more resources to conduct the study, which was not possible in this study conducted as a part of bachelor studies.

### ***5.5 Future research***

The area of study includes a lot of interesting aspects and possibilities to study and research in the future. For instance, the research might have a lot more interesting results if the study was conducted among a bigger group of respondents. It would be interesting to find out, that how the results would vary if there were more vegans or vegetarians involved in the study or if there were young people included for example from vocational studies or work life. An interesting aspect for the study would also be young adults whose parents were vegans or vegetarians as in the research of Chwialkowska (2018).

This study was limited completely to Finland and Finnish young adults, but another point-of-view could be the differences that culture makes to the results. In Finland people generally tend to have more knowledge on the topics of sustainability than people in countries that sustainability is not as educated topic. In addition, in other cultures people may be even more influenced of their parents' attitudes or behavior, which could add interesting aspects to the study.

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## Appendices:

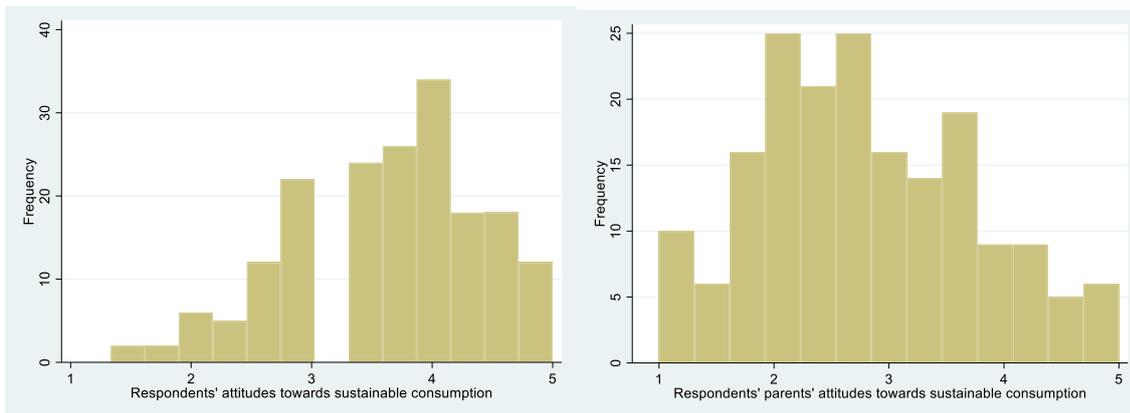
### Appendix 1: Correlation matrixes of the factors

	Q5_5	Q5_6	Q5_10	Q5_11	Q5_12	Q5_13	Q5_7	Q5_8	Q5_9	meat	dairy
Q5_5	1,00										
Q5_6	0,84	1,00									
Q5_10	0,44	0,43	1,00								
Q5_11	0,43	0,38	0,57	1,00							
Q5_12	0,43	0,39	0,51	0,80	1,00						
Q5_13	0,67	0,64	0,48	0,54	0,56	1,00					
Q5_7	0,24	0,31	0,20	0,37	0,35	0,27	1,00				
Q5_8	0,29	0,31	0,20	0,38	0,39	0,36	0,53	1,00			
Q5_9	0,31	0,35	0,23	0,40	0,41	0,38	0,51	0,88	1,00		
meat	0,10	0,03	0,14	0,25	0,28	0,16	0,16	0,14	0,18	1,00	
dairy	0,05	-0,02	0,20	0,27	0,27	0,08	0,07	0,04	0,04	0,55	1,00

	Q7_3	Q7_4	meat2	dairy2	Q7_5	Q7_6	Q7_10	Q7_11	Q7_12	Q7_13	Q7_7	Q7_8	Q7_9
Q7_3	1,00												
Q7_4	0,49	1,00											
meat2	0,77	0,57	1,00										
dairy2	0,28	0,21	0,49	1,00									
Q7_5	0,08	-0,01	-0,02	-0,08	1,00								
Q7_6	0,07	-0,01	-0,07	-0,10	0,81	1,00							
Q7_10	0,30	0,18	0,23	0,16	0,40	0,38	1,00						
Q7_11	0,36	0,18	0,27	0,10	0,49	0,47	0,53	1,00					
Q7_12	0,35	0,25	0,31	0,21	0,43	0,42	0,56	0,83	1,00				
Q7_13	0,15	0,09	0,07	0,03	0,60	0,66	0,49	0,60	0,56	1,00			
Q7_7	0,56	0,26	0,40	0,13	0,31	0,26	0,31	0,40	0,39	0,31	1,00		
Q7_8	0,38	0,11	0,33	0,10	0,40	0,34	0,21	0,35	0,31	0,35	0,51	1,00	
Q7_9	0,29	0,08	0,22	0,07	0,40	0,33	0,18	0,35	0,30	0,37	0,48	0,91	1,00

	Q4_1	Q4_2	Q4_3	Q6_1	Q6_2	Q6_3
Q4_1	1,00					
Q4_2	0,81	1,00				
Q4_3	0,70	0,70	1,00			
Q6_1	0,23	0,27	0,14	1,00		
Q6_2	0,38	0,29	0,24	0,56	1,00	
Q6_3	0,14	0,16	0,15	0,66	0,43	1,00

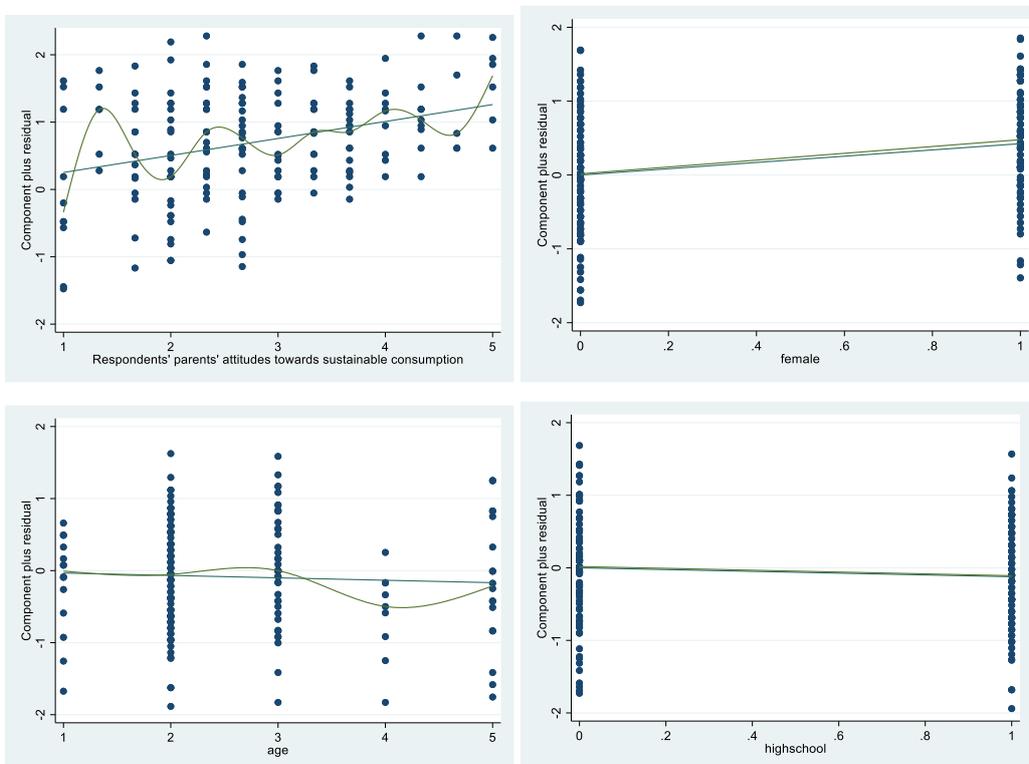
### Appendix 2: Histograms of respondents' and their parents' attitudes



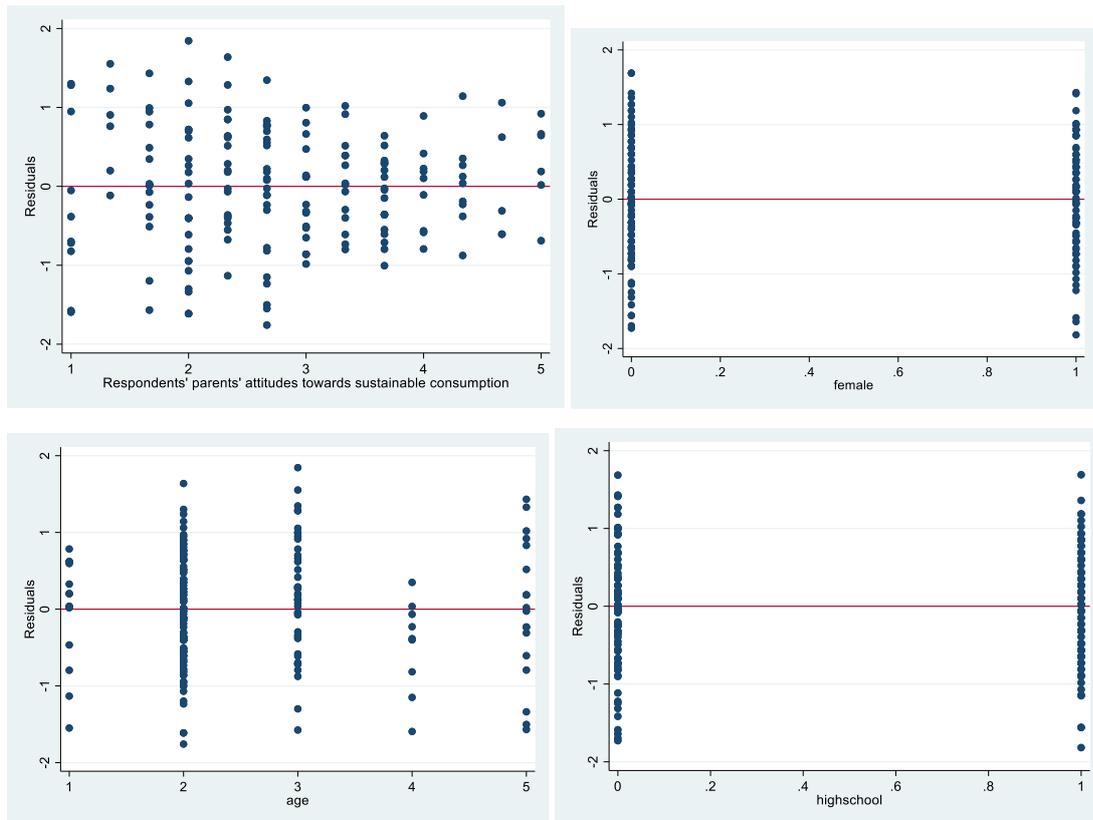
### Appendix 3: correlation matrix – Attitudes

	Attitudes	Parents' attitudes
Attitudes	1,000	
Parents' attitudes	0,296	1,000

### Appendix 4: The linear relationship in linear regression on attitudes



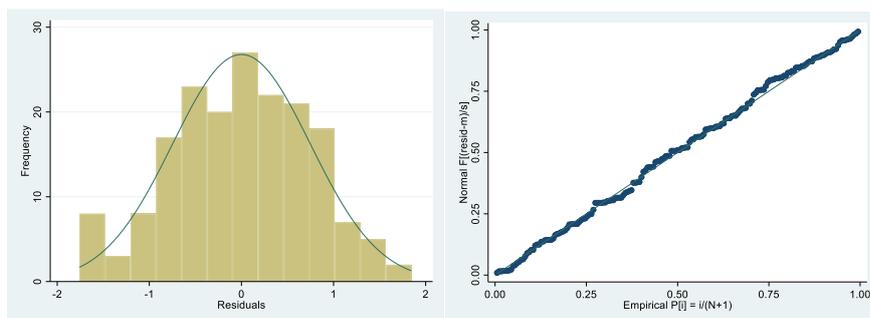
### Appendix 5: Independence of the residuals in linear regression on attitudes



### Appendix 6: Multicollinearity in linear regression on attitudes

Variable	1/VIF
High school	0,668
Age	0,657
Female	0,978
Parent's attitudes	0,985

### Appendix 7: Normality of the residuals in linear regression on attitudes

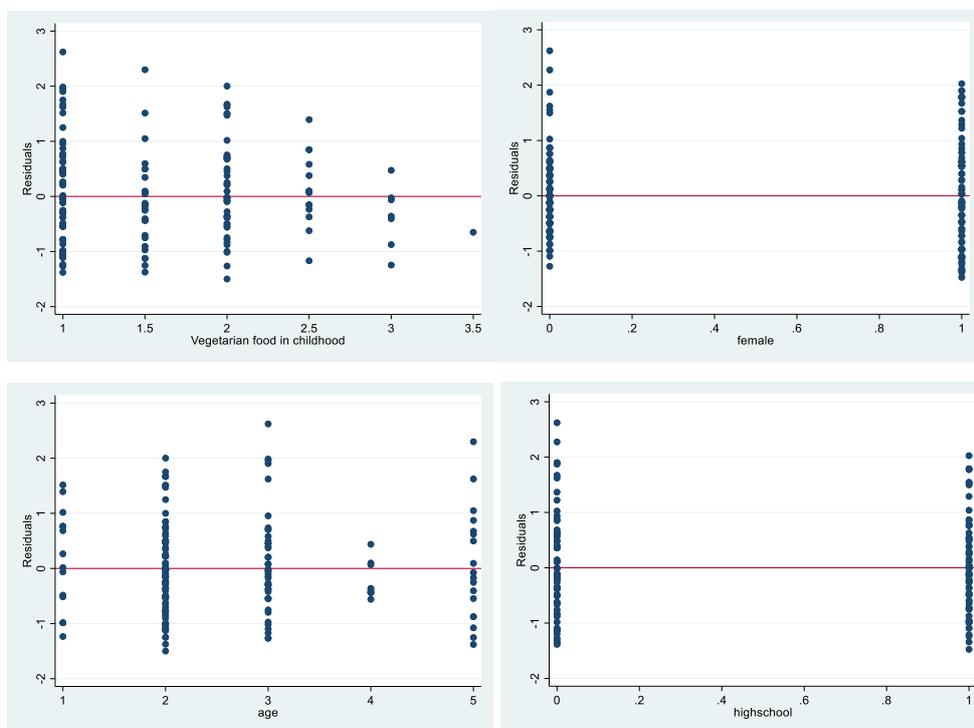


Shapiro-Wilk	
Variable	p
residual	0,47583

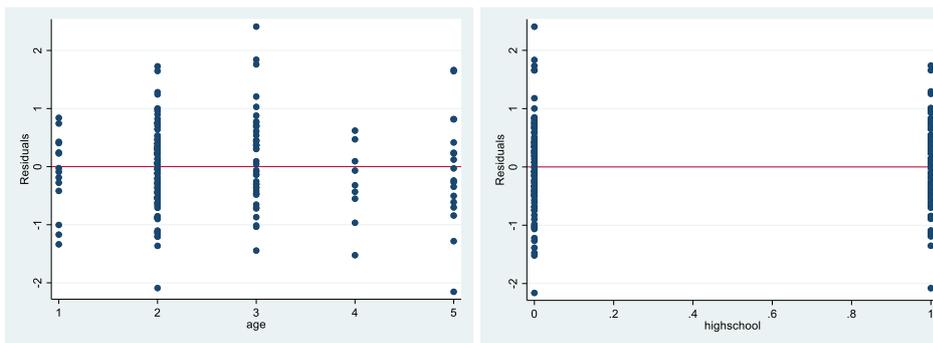
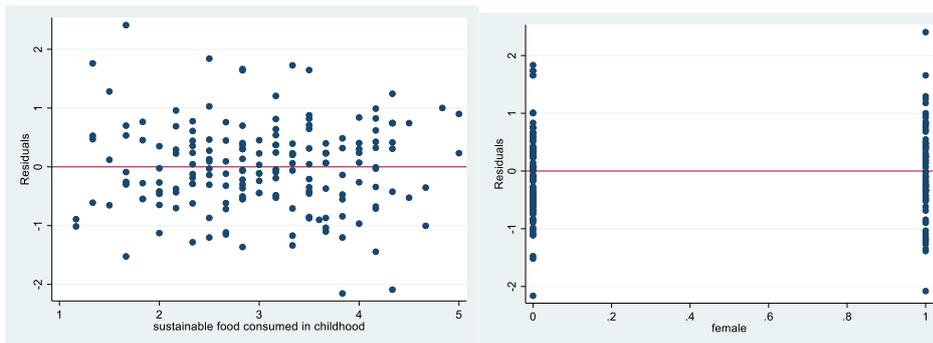
**Appendix 8: Effect sizes – sustainable food consumption**

Effect sizes	Vegetarian food	Sustainable food	Vegetables
Childhood vegetarian food	0,03		
Childhood sustainable food		0,25	
Childhood vegetables			0,31
Gender: Female	0,15	0,01	0,17
Age	0,00	0,01	0,00
Education: High school	0,01	0,00	0,01

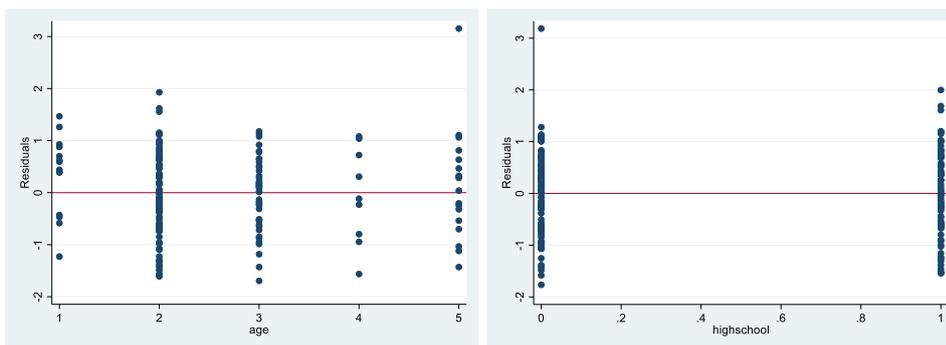
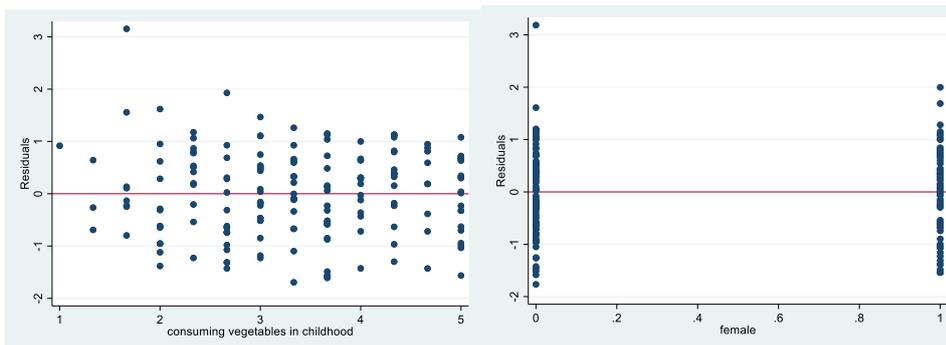
**Appendix 9: Independence of the residuals in linear regression on sustainable consumption**



*Independence of the residuals: vegetarian food*



*Independence of the residuals: sustainable food*

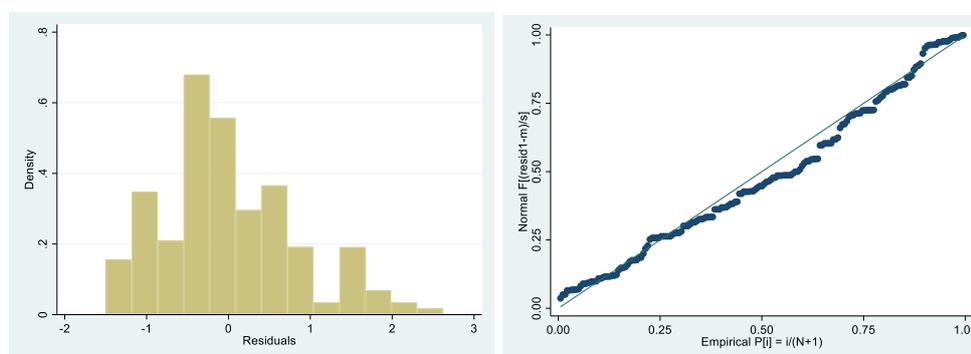


*Independence of the residuals: vegetables*

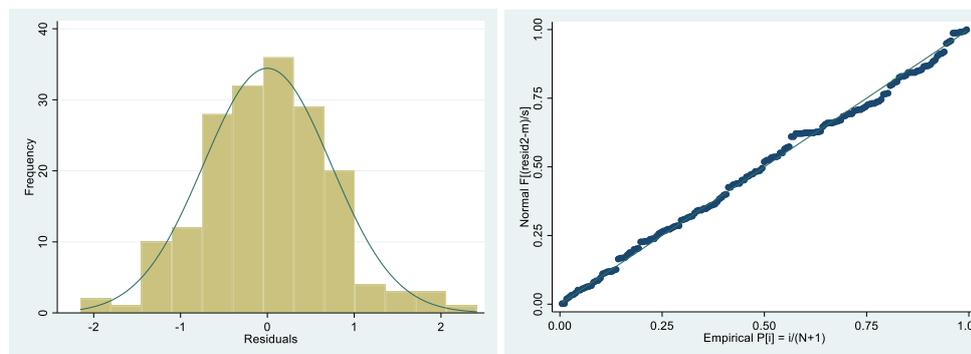
**Appendix 10: Multicollinearity of the linear regression on the sustainable consumption**

Variable	Vegetarian food	Sustainable food	Vegetables
Education: High school	0,650	0,666	0,667
Age	0,657	0,654	0,661
Gender: Female	0,980	0,979	0,973
Childhood vegetarian food	0,983		
Childhood sustainable food		0,979	
Childhood vegetables			0,998

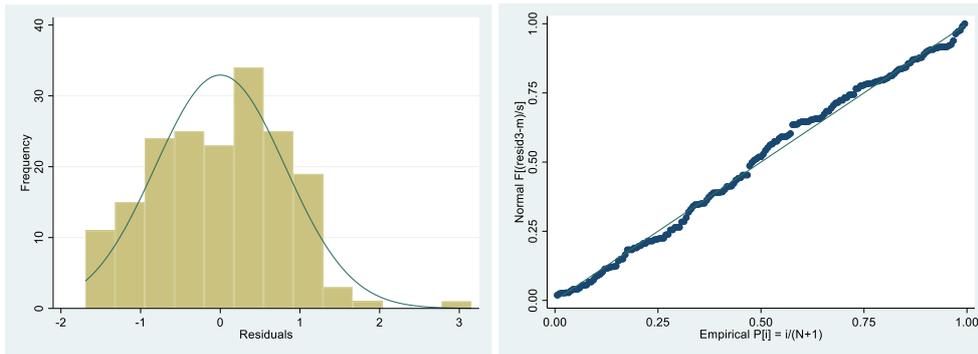
**Appendix 11: Normality of the residuals - sustainable consumption**



*Normality of the residuals: Vegetarian food*



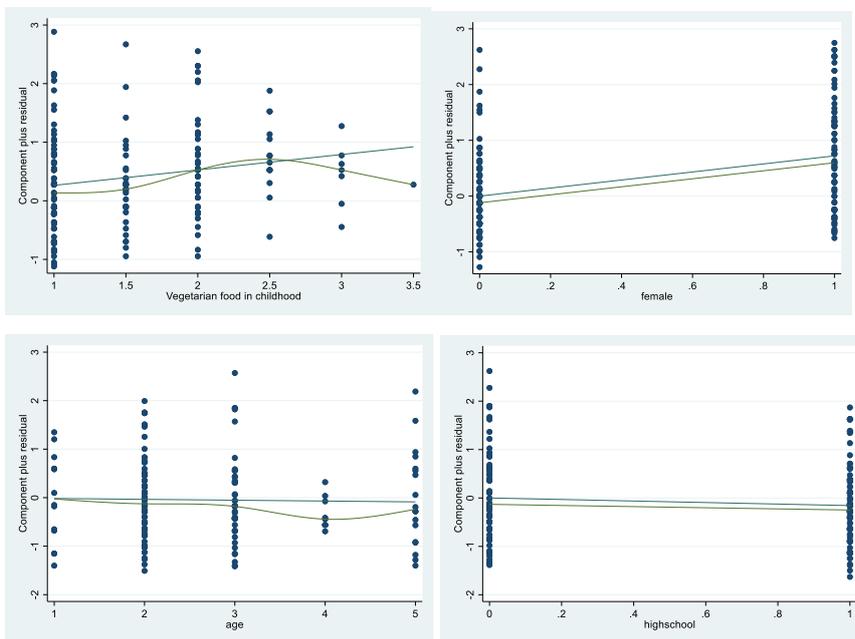
*Normality of the residuals: Sustainable food*



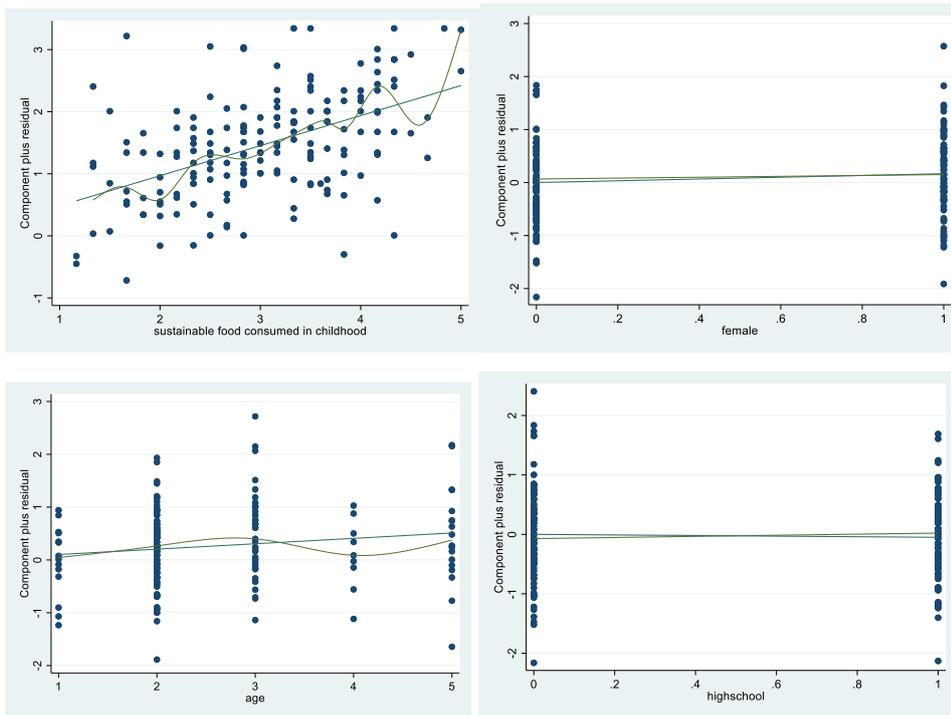
Normality of the residuals: Vegetables

Shapiro-Wilk	
Variable	p
resid1 (Vegetarian food)	0,000
resid2 (Sustainable food)	0,298
resid3 (Vegetables)	0,020

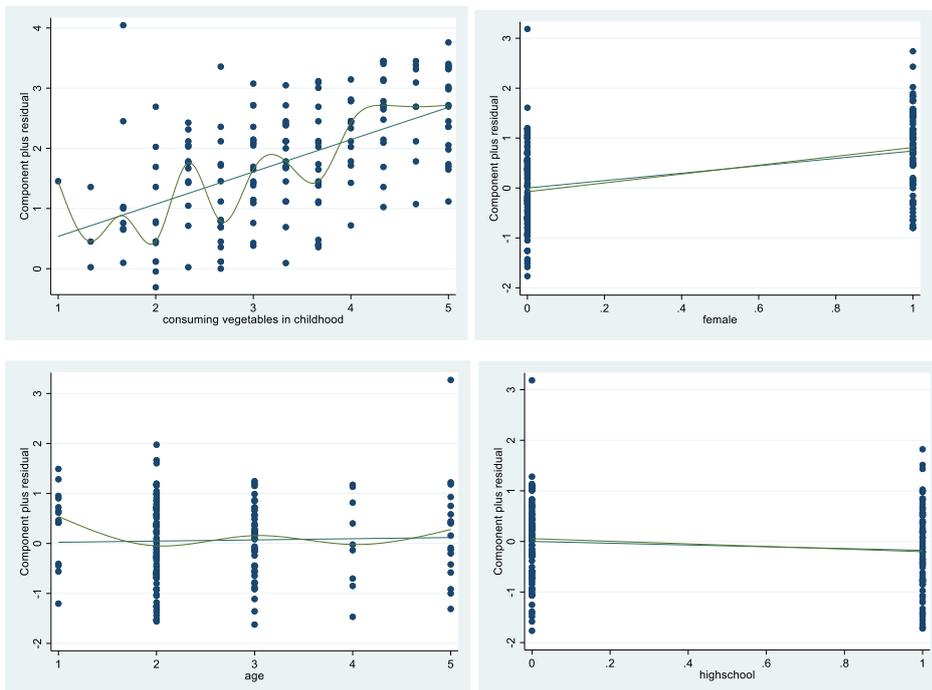
Appendix 12: Linear relationship – sustainable food consumption



Linear relationship: Vegetarian food



*Linear relationship: Sustainable food*

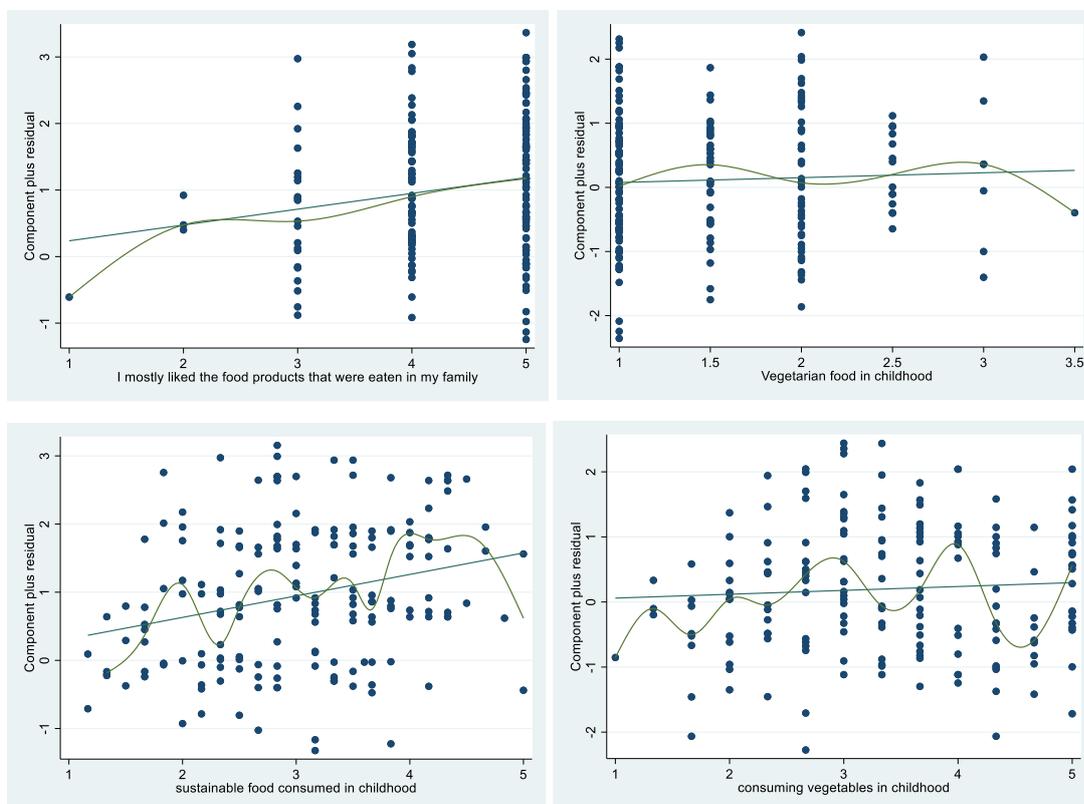


*Linear relationship: vegetables*

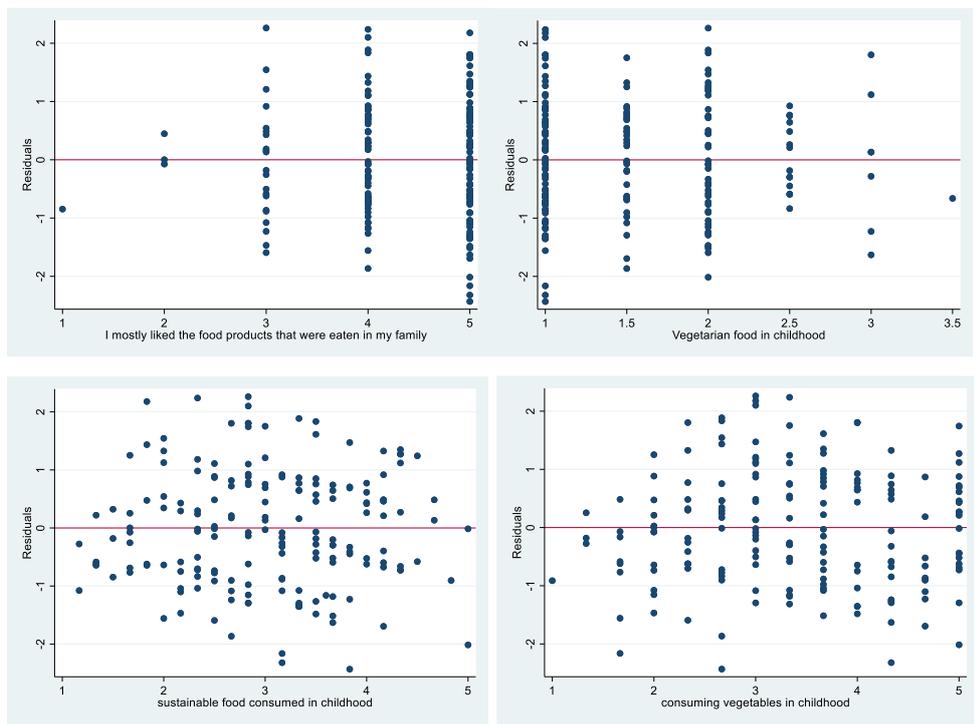
**Appendix 13: Effect sizes – young adults’ usage of products**

Variable	Eta-squared
Liking food in childhood	0,030
Vegetarian food in childhood	0,002
Sustainable food in childhood	0,052
Vegetables in childhood	0,003

**Appendix 14: Linear relationship - young adults’ usage of products**



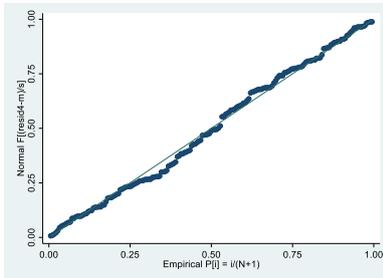
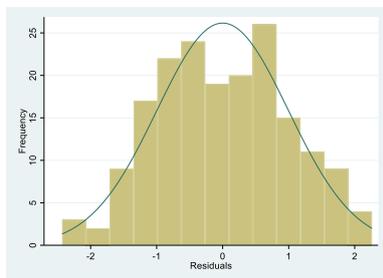
**Appendix 15: Independence of the residuals – young adults’ usage of products**



**Appendix 16: Multicollinearity of the variables - young adults’ usage of products**

Variable	1/VIF
Sustainable food in childhood	0.716835
Vegetables in childhood	0.773764
Liking food in childhood	0.880308
Vegetarian food in childhood	0.917287

**Appendix 17: Normality of the residuals – young adults’ usage of products**



Variable	$p$
resid4	0,33