

Decreasing purchase intention of smoked sausages of Dutch consumers



(Yenom, 2014)

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Abstract

In 2016, 187 countries, including the Netherlands, agreed to reduce their share in global warming, to keep the global temperature rise below two degrees Celsius. Food production and consumption is a large contributor to global warming in the Netherlands, especially the production and consumption of meat products. This research aims to investigate how the purchase intention of meat can be decreased by increasing the price or by adding a sustainability label to a smoked sausage.

To examine this, an analysis of the Construal Level Theory of Psychological Distance combined with a survey, consisting of 227 respondents, was conducted. These analyses found that the attachment of a sustainability label decreases the purchase intention of smoked sausages, where a price increase does not change the purchase intention.

Hence, this research could be used by the Dutch government to implement a sustainability label on meat products to reduce the meat consumption of Dutch consumers.

Table of Contents

1	Introduction.....	4
2	Theoretical Framework	6
2.1	Sustainability	6
2.1.1	Food sustainability.....	7
2.2	The unsustainability of meat consumption	8
2.3	Construal Level Theory of Psychological Distance.....	9
2.3.1	Construal Level Theory of Psychological Distance in accordance with sustainability.....	10
2.4	Attitude of consumers towards sustainable food consumption	12
2.5	The use of Construal Level Theory of Psychological Distance in this research	13
3	Method	16
3.1	Participants & Design.....	16
3.2	Stimuli	17
3.3	Measurements.....	17
3.4	Analyses.....	17
3.5	Procedure	18
4	Results	19
4.1	Descriptive statistics	19
4.2	Purchase intention	19
5	Conclusion.....	22
6	Discussion	23
6.1	Research implications	23
6.2	Contribution to the existing literature.....	24
6.3	Limitations and future research.....	24
	References.....	26
	Appendix	30

1 Introduction

At the end of 2016, The Paris Agreement came into force and to this day 187 countries, including The Netherlands, have to stick to the promises that they made in 2016 (United Nations, 2019). In this agreement, all including parties promised to reduce their share in the climate change, to keep the rise of global temperature this century below 2 degrees Celsius. To reduce the Netherlands' contribution to global warming, some radical changes need to be made, in multiple sectors.

Food consumption, mobility and residential use have the largest negative impact on the environment when it comes to human consumption (Van Passel, 2013). The impact on the environment per sector consists of 35 percent of food consumption, this is the biggest share of all sectors (De Graaff, Bergsma, 2017). Therefore, if the Netherlands wants to meet The Paris Agreement, a change in food consumption is necessary (De Graeff, et al., 2018).

The main reason for the contribution of food consumption to the problem of global warming is the consumption of meat (Godfray, Aveyard, Garnett, Hall, Key, Lorimer, Pierrehumbert, Scarborough, Springmann, Jebb, 2018). The production of meat is associated with deforestation, major emissions of greenhouse gasses and other pollutants, and soil erosion (Godfray et al., 2019). The consumption of meat is the second-largest contributor to global warming in the Netherlands, after the consumption of articles (De Graaf et al., 2017). It is clear to say that the consumption of meat is the standard (Dagevos, Verhoog, Van Horne, Hoste, 2019). For many consumers, eating meat is a traditional social practice. Although consumers seem to be aware of the fact that reducing meat consumption is necessary to reduce their contribution to global warming, they lack the exact knowledge of the impact on the environment per product, motivation or capability to make such changes (Stubbs, Scott, Duarte, 2018). The contradiction between knowing that reducing meat consumption is necessary and the lack of humans to reduce their meat consumption can be explained with the Construal Level Theory of Psychological Distance. This theory explains why humans act differently when a concept is abstract in contrast to a concept that is more relatable to humans (Trope, Liberman, 2010). Sustainable consumption is a subject that is related to this theory (Van Dam, 2016).

Consumers lack knowledge about the impact on the climate of their food, which results in the fact that consumers do not change their purchasing behaviour (Stubbs et al., 2018). However, a study, conducted in the United States, showed that consumers would change their purchasing behaviour towards a more sustainable product if they knew the amount of greenhouse gas emissions of a certain product (Camilleri, Larrick, Hossain, Pation-Echeverri, 2018). In this study, the researchers tried to influence the consumers by providing information about the amount of 'light bulb minutes' saved by choosing a certain option. Another study, conducted in Australia, showed that an integration of the price of greenhouse gasses into the price of food commodities could change the purchasing behaviour of consumers towards a more sustainable option (Springmann, Sacks, Ananthapavan, Scarborough, 2018). In this way, consumers compensate for the emission of greenhouse gasses of the products they buy.

These two studies found that consumers are willing to change their purchasing behaviour towards more sustainable product. However these studies are conducted on two different continents. Therefore, the purpose of this research is to find out if the outcome of the studies, that are conducted in other parts of the world, will be the same in the Netherlands and which of these two methods works best.

This thesis will answer the main research question:

“How can Dutch consumers be stimulated to buy less meat: an increase in price or the attachment of a sustainability label?”

To answer the main question, four sub-questions are needed. The first sub-question is “How can Construal Level Theory help by explaining the current meat consumption pattern of Dutch consumers?”. The second sub-question is “What percentage of Dutch consumers is willing to reduce their meat consumption?”. Last, the sub-questions “Does providing more information help consumers to buy less meat?” and “Does an increase in meat price lead to consumers buying less meat?” contribute to finding the best way of convincing consumers to buy less meat.

2 Theoretical Framework

Definitions

2.1 Sustainability

Sustainability has a broad definition. In 1987 the United Nations Commission on Environment and Development defined sustainability as the development that takes care of current needs, without jeopardizing the needs of future generations (World Commission on Environment and Development, 1987). However, this definition was vague and lacked operational guidelines (Ben-Eli, 2018). In Ben-Eli's research, another definition of sustainability is suggested (Ben-Eli, 2018, p. 4): "A dynamic equilibrium in the process of interaction between a population and the carrying capacity of its environment such that the population develops to express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends.". In Ben-Eli's research, the definition of sustainability is accompanied by five essential domains. First, The Material Domain, which constitutes the basis for regulating the flow of materials and energy that underlie existence. Second, The Economic Domain, which provides a guiding framework for defining, creating, and managing wealth. Third, The Domain of Life, which provides the basis for appropriate behaviour in the biosphere in relation to all other species. Fourth, The Social Domain, which provides the basis for social interactions. Last, The Spiritual Domain, which identifies the necessary attitudinal, value orientation and provides the basis for a universal code of ethics.

Each of these domains are interdependent, with each one affecting all the others (Ben-Eli, 2018).

The production and consumption of meat relate to the four of the five domains. These domains are the Material Domain, the Economic Domain, the Domain of Life and the Social Domain. The meat production system falls in the Material Domain because it is a flow of materials. Furthermore, meat is the food product that takes the most energy to produce (The World Counts, 2019). Meat needs to be produced and this is accompanied with costs. These costs need to be returned by charging consumers a price for meat products. In this way, meat production falls in the Economic Domain, because consumers have to pay a price

for their meat products. The pollutions of greenhouse gasses that are associated with meat production belong to the Domain of Life. Due to a worldwide increase in the consumption of meat the past fifty years, the total emission of greenhouse gasses increased (Vranken, Avermaete, Petalios, Mathijs, 2014). This belongs to the social Domain. It is estimated that the poorest countries will be affected the most by global warming, while they make the smallest contributions to global warming (King & Harrington, 2018). This means, indirectly, due to high emission of greenhouse gasses in developed countries, underdeveloped countries will be harmed the most by global warming. Moreover, underdeveloped countries consume less meat (Ritchie, Roser, 2019). The link of the spiritual Domain to meat consumption is, for example, that some people do not eat certain types of meat. However, the different forms of meat consumption are not relevant for this research, because in this research the consumption of all Dutch consumers is examined, including all types of meat.

As explained above, sustainability is a broad concept and this thesis only lays focus on the production and consumption of meat. To get the concept of sustainability in combination with meat consumption clearer, a narrower explanation of sustainability in association with the meat production system is needed.

2.1.1 Food sustainability

The UK Sustainable Development Commission defines sustainable food and drink as “that which is safe, healthy, and nutritious for consumers in shops, restaurants, schools, hospitals, and so forth; can meet the needs of the less well off at a global scale; provides a viable livelihood for farmers, processors, and retailers whose employees enjoy a safe and hygienic working environment; respects biophysical and environmental limits in its production and processing while reducing energy consumption and improving the wider environment; respects the highest standards of animal health and welfare compatible with the production of affordable food for all sectors of society; and supports rural economies and the diversity of rural culture, in particular by emphasizing local products that minimize food miles.” (Reisch, Eberle, Lorek, 2013, p. 8).

However, the definition of Reisch et al., 2013 focusses on the sustainability of the whole food consumption system. In this study, the focus will be on a part of the food consumption

system. The focus will be on sustainability in association with meat production and consumption, especially the unsustainability of meat. To get the definition of sustainability in combination with meat consumption clear, the definition that will be used in this research is: “The negative contribution of meat production and consumption to global warming, by means of the greenhouse gasses that are being released with the production of meat.”.

2.2 The unsustainability of meat consumption

The production of meat is associated with multiple emissions of greenhouse gasses, of which the most important ones are carbon dioxide, methane and nitrous oxide (Godfray et al., 2018). The emissions of these greenhouse gasses contribute to global warming. This causes the greenhouse effect. The greenhouse effect is a natural process by which the atmosphere retains some of the sun’s heat (Acconia, 2019). However, due to human emission of greenhouse gasses, the global temperature is rising. This is because these greenhouse gasses act like a blanket, absorbing IR radiation and preventing it from escaping into outer space. The net effect of this process is a rise in global temperature (Lallanila, 2018).

The production process of meat brings along more emissions of greenhouse gasses per unit than the production process of plant-based products does (Godfray et al., 2018). The emissions that are being released, when producing meat, come from the usage of fertilizers by farmers, the animals themselves and the transportation of meat products (De Bruyn, Odegard, Warringa, 2018). The amounts of greenhouse gasses, that are released when producing meat, differ between the different types of meat products. The production of lamb brings along the most emissions of carbon, followed by beef, pork and poultry (Milieu Centraal, 2019).

In the Netherlands, consumption of meat contributes for forty percent of the total climate impact of food (Milieu Centraal, 2019). Food consumption contributes to thirty-five percent to global warming in the Netherlands (De Graaff et al., 2017).

A majority of consumers is not willing to change their consumption behaviour, despite usually having general knowledge about the negative contribution of meat consumption to global warming (Stubbs et al., 2018). This is because consumers have a lack of awareness of the actual association between meat consumption and climate change, have the perception that their meat consumption plays a minimal role in climate change or they simply resist to

the idea of reducing meat consumption. Meat consumption is associated with important personal, social and cultural values. This suggests that dietary change can be achieved by addressing the values and beliefs of consumers concerning meat consumption (Macdiarmid, Douglas, Campbell, 2016). To look further into the relation of unsustainable meat consumption and the way humans interpret the consequences of meat consumption, it is possible to address this with the Construal Level Theory.

2.3 Construal Level Theory of Psychological Distance

Trope and Liberman were the first to talk about the Construal Level Theory of Psychological Distance. They found that people can only directly experience the *here* and *now*. Humans cannot experience the past and the future, other places, other people and alternatives to reality. However, humans can have memories, plans, predictions, hopes or counterfactual alternatives, which are not in the here and now or might not happen at all. These memories, plans, predictions, hopes or counterfactual alternatives influence emotions and help by guiding people's choices and actions (Trope, Liberman, 2010).

The way humans make choices or actions, Construal Level Theory suggests, is by forming abstract mental construals of *objects, events* or *individuals*. Predictions, memories and speculations are all forms of mental construals. This means the way people interpret the environment around them. Any object, event or individual can be seen in multiple ways and humans can perceive these objects, events or individuals at a low-level construal or a high-level construal (Eyal, Liberman, 2012; Chiou, Wu, Chang, 2012).

Low-level construals are concrete and contextualized construals and high-level construals are viewed to be relatively abstract, coherent and superordinate mental representations in comparison with low-level construals (Eyal, Liberman, 2012) (Trope et al., 2010). High-level construals are linked to the main purpose of an event, where low-level construals relate more to the practical matters of an event (Zuure, 2011).

There are two related criteria for distinguishing which aspects of an object (or event or individual) are perceived on low level construal and which aspects of an object are perceived on high level construal. These criteria reflect centrality and subordination. Centrality means that changing a high-level construal of an object has a *greater* impact on the meaning of that object than does changing a low-level construal of an object. For example, a lecture, the

object in this case, would change more if the speaker changes, than when the room of the lecture is changed. This means that the aspect 'speaker' is of a *higher* level of construal than the aspect 'room' is. The lecture is the object in this example.

Subordination means that the meaning of low-level construals *depends* on high-level construals more than vice versa. To illustrate, this means that the location of a guest lecture would *only* become important if the topic of the lecture is interesting. The topic of the lecture, on the other hand, would be important, despite the location of the lecture. The details about the location of a lecture are in this case subordinated to the details about the topic of the lecture. This means that the location of a lecture is of a lower level of construal than the topic of the lecture. High-level construals often convey additional information about the value of the stimulus and the relations to the other stimuli (Trope et al., 2010).

Construal Level Theory is linked to Psychological Distance. Psychological Distance is egocentric. The reference point of psychological distance is the self, in the here and now. (Trope, Liberman, Wakslak, 2007). As the psychological distance *increases*, construals become more abstract. This also means, when construals become more abstract, that the psychological distance increases. The increase in psychological distance can be in dimensions of time, space, social distance or hypothetical distance. These four dimensions are *interrelated* and psychological distance is accessed automatically, even when it is not directly related to people's current goals. (Stephan, Liberman, Trope, 2010; Bar-Anan, Liberman, Trope, Algom, 2007). As this distance increases, construals would become more abstract. These different distances, in turn, influence predictions, evaluations and actions.

Summarizing, Psychological distance refers to when an event occurs, where it occurs, to whom it occurs, and whether it occurs. On the other hand, construal level's refer to what will occur (Trope, et al., 2010).

The Construal Level Theory of Psychological Distance is a broad concept. In this research, the use of this theory, in accordance with sustainable consumption will be examined.

2.3.1 Construal Level Theory of Psychological Distance in accordance with sustainability

The concept of sustainability means many things to different people, and this diversity of different meanings tends to increase (Bolis, Morioka, Sznalwar, 2014). Sustainability contains *informational unclarity* and *socio-temporal dilemmas* and covers at least three of the four

dimensions of psychological distance. These dimensions are the temporal, social and hypothetical distance. This means that sustainability refers to uncertainty about when the consequences of global warming will happen, who it will impact and it is not clear what the exact consequences of global warming will be. The uncertainty about the consequences of global warming reinforces the Psychological Distance and the high level of construal. The human perception of sustainability is, that global warming is unlikely to happen or that they will not be affected by the consequences. People think that the consequences of global warming will happen in the far future, they might not even live anymore, and maybe only people that they do not know will be affected by global warming (Van Dam, 2016).

The fact that humans are uncertain about the consequences of global warming, *increases* the Psychological Distance and *raises* the construal level of sustainability (Van Dam, 2016). It can be concluded that the concept sustainability is of a high level of construal and has a large psychological distance because sustainability is often explained in terms of abstract consequences and future generations (Van Dam, 2016). The difficulty with sustainability is, that people may consider the distal desirable goal of sustainable development at high construal level and seriously intend to act sustainably in general, but at the same time, consumers are not making sustainable production choices, because they only look at things that are closer to themselves (Van Dam, 2016,). For example, when a person is doing groceries, this person thinks about what to eat for tonight's dinner and not about what consequences the purchase of meat may have in the far future.

Sustainability is a conflict between high and low construal level. Currently, sustainability is represented by *high* construal level. This representation is not been working and it has failed to cause humans to act more sustainably and to achieve the desired changes. Therefore, economic policy should create low level construal incentives to stimulate sustainability among consumers and to discourage the current non-sustainable marketing of firms (Van Dam, 2016).

2.4 Attitude of consumers towards sustainable food consumption

Only five percent of Dutch consumers are vegetarian (Vegetariërsbond, 2020). Five percent is a small percentage, there is room for improvement. However, the amount of vegetarians in the Netherlands is rising (Vegetariërsbond, 2020).

In general, the consumers who already consume sustainable food products are people with a higher income, a higher level of education, a more prestigious job and are better informed than average (Annunziata, Ianuario, Pascale, 2011). However, this is a minority. In the Netherlands, only twenty-two percent of consumers see themselves as a 'conscious consumer'. A 'conscious consumer' considers sustainability while consuming (Motivaction International B.V., 2017). Only 22% percent of Dutch consumers considers sustainability when doing groceries, this means that 78% does not consider sustainability when doing groceries.

Seventy-two percent of Dutch consumers consume meat 5 to 7 times per week. (Motivaction International B.V., 2019). However, the attitude of Dutch consumers towards sustainable consumption is neutral or slightly positive, which means that only ten percent of Dutch consumers are not open to the notion of reducing their meat consumption (Motivaction International B.V., 2018). The fact that only ten percent of Dutch consumers is not open to the notion of reducing meat consumption means, that ninety percent of Dutch consumers is willing to reduce their meat consumption. However, some consumers need more guidance than others. (Motivaction International B.V., 2018).

For some consumers, sustainable food consumption means the purchase of meat substitutes, while other consumers prefer consuming less meat (Verain, Dagevos, Antonides, 2015). However, this has the same effect, namely meat reduction.

2.5 The use of Construal Level Theory of Psychological Distance in this research

Construal Level Theory can be used to explain the contradiction between people having the knowledge that reducing meat consumption is necessary and people failing to reduce their meat consumption. In the current situation, the majority of Dutch consumers does their groceries without considering sustainability, while making their product choices (Motivaction International B.V., 2017). Thanks to the Construal Level Theory of Psychological Distance we know this is because humans perceive the consequences of global warming on high construal level. The consequences of global warming are vague and humans have difficulty to fully understand the concept of sustainability. This makes that most consumers do not make sustainable consumption choices. The purpose of this research is to lower the level of construal of sustainability and to change consumers' purchase intentions. This will be done in two different ways.

First, research will be done to find if an increase in meat price will reduce meat consumption. An increase in price will directly affect consumers, because they have to pay a higher price, in the here and now. The here and now means that consumption happens at the same place and time as to where the consumer is. The here and now lowers the Social and Temporal dimension of psychological distance from a 'far' distance to a 'closer' distance. As the psychological distance decreases from a further to a closer distance, the level of construal decreases from high to low (Trope et al, 2010). An increase in price is something that consumers directly experience. With an increase in price, the concept of sustainability will be moved from high-level construal to low-level construal. The expectation is that consumers will consume significantly less meat if there is an increase in price because of the fact that the construal level is lowered for consumers. An increase in meat price means that consumers pay for the external costs that are associated with the production of meat. External costs are costs that are not included in the price of a product, but still need to be paid. This means that the producer of a product does not pay for these costs, but society as a whole pays for the external costs of the product. The pollution of greenhouse gasses that are being released when producing meat is an example of an external cost. When consumers pay for the external costs of meat, this means that the price of pork, beef and poultry will increase with respectively 53%, 40% and 26% (De Bruyn et. al., 2018).

Hypothesis 1: An increase in price decreases meat consumption.

Second, an examination will be done to find if a sustainability label reduces meat consumption. This label will make a comparison between the unsustainability of the meat product and the number of minutes a person could take a shower instead when choosing not to buy this product. Taking a shower is something that every person does. If the comparison was made with, for example, 'the number of kilometres a person can drive by car', people who do not own a car might think that they are more sustainable than people who do own a car. People who do not own a car might think that they can buy the meat product because they already behave in a more sustainable way than people who do own a car. To prevent this, the choice was made for something that every person does.

On average, humans emit a Co₂-equivalent of 16.03 gram per minute when they take a shower (Van de Waal, 2017). This average is used to compare the emission of the meat product with the total amount of minutes a person can take a shower to reach the same Co₂-equivalent. A Co₂-equivalent is the emission of all greenhouse gasses converted to Co₂ (Vlaamse Milieumaatschappij, 2020). In this study, the meat product will be pork. Pork has a Co₂-equivalent of 11 kilograms per kilogram (Janssen, 2018). The meat product weights 285 grams, this is equal to 195 minutes of showering.

A label makes sustainability tangible for consumers. Consumers see directly what harm the production of the meat product did to the environment and consumers can make a comparison that they can understand. In this way, the concept of sustainability will be moved from high-level construal to low-level construal. The expectation is that consumers will consume significantly less meat if there is a label attached to the meat product, because the construal level is lowered.

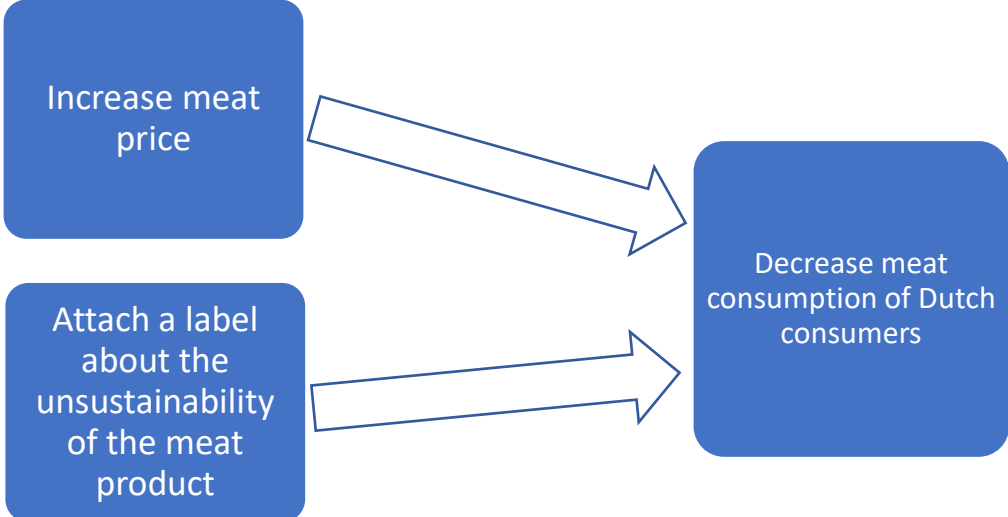
Hypothesis 2: A label about the unsustainability of the meat product decreases meat consumption

The expectation is that both methods will work. Besides examining if both methods work, this study will research which of the two methods works best. The expectation is that the increase in price will have a larger effect on reducing meat consumption than the

attachment of a label does. An increase in price has a direct impact on consumer behaviour, because consumers have to pay more money for the same product. A sustainability label shows what harm the product did to the environment, but consumers can easily ignore this label and still buy the product. Consumers cannot ignore a price increase.

Hypothesis 3: An increase in price has a larger effect than the attachment of a sustainability label.

Figure 1: conceptual framework



3 Method

3.1 Participants & Design

To answer the last two sub-questions “Does providing more information help consumers to buy less meat?” and “Does an increase in meat price lead to consumers buying less meat?”, see page five, a quantitative research was conducted through an experiment. This experimental study was conducted through an online survey. The conditions of the 2 x 2 experiment were:

Price: No-increase vs. Increase

Label: No vs. Yes.

In a 2 x 2 between-subject experiment, four different groups are used for each level of the variable. Because of this design, it will appear that any difference between the outcomes of each level of the variable can be attributed to one of the manipulations, provided that the subjects are randomly assigned to the manipulations (Lane, 2020).

The survey was spread through Facebook and WhatsApp. In total, 287 respondents filled out the questionnaire completely. Of these 287 respondents, 57.5 percent were women and 42.5 percent were men. The participants ranged in age from 16 to 68 with a mean of 23.6 years. The distribution of the respondents is not normal. This is because a lot of students were reached through social media channels. One hundred and eight respondents were reached through the use of WhatsApp. The other respondents were reached through Facebook. The invitation link was posted on the researchers Facebook timeline, the invitation link was sent to the groups ‘Respondenten gezocht (onderzoek, enquête, vragenlijst, scriptie, afstudeer) and ‘Vragenlijst/Enquête RESPONDENTEN GEZOCHT/ ruilen HBO/WO Studenten’, these are groups where researchers help each other out by filling out the survey of one another, and the survey was sent to the group ‘Wageningen Student Plaza’, a group for all students of Wageningen to contact each other for a variety of reasons.

3.2 Stimuli

When filling out the survey, the respondents were shown an image of an 'Unox Rookworst', this is a Dutch brand of smoked sausages. The respondents got to see one image. This image could be one of the following four manipulations:

- an image of an unmanipulated smoked sausage
- a smoked sausage with a price increase
- a smoked sausage with a label
- a smoked sausage with both an increased price and a label.

The image of the unmanipulated smoked sausage had the standard price and no label attached to it. See appendix 3.2.1 for the images.

3.3 Measurements

The assignment to one of the 2 x 2 experiment conditions, between-subjects design was done randomly by Qualtrics. The experiment's dependent variable was purchase intention. The purchase intention was measured on a 7-point Likert scale, with 1 = absolutely unlikely to buy and 7 = absolutely likely to buy.

3.4 Analyses

Each consumer was shown one of the four images, which led to an analysis between four groups:

Group 1: No manipulation

Group 2: High price

Group 3: Label

Group 4: High price and label

To test the first and second hypothesis, independent t-tests were conducted, with respectively a high price and a label as independent variables and the purchase intention as the dependent variable. To test the third hypothesis, another independent t-test was conducted with dependent variables higher price and label and independent variable purchase intention. To test for an interaction effect of the label and the high price, a two-

way ANOVA was conducted with dependent variable purchase intention and dependent variables label and high price.

3.5 Procedure

When respondents used the invitation link, they were redirected to the survey. First, the respondents were welcomed to the survey and thanked for their participation. Respondents were told that the survey would only take a few minutes of their time and that the responses were anonymous and only used for this research. On the screen that followed, respondents were asked if they were vegetarian. They were also asked to indicate on a scale of 1 to 7 how much they liked to eat smoked sausage. The reason for this was to eliminate respondents with no purchase intention of the smoked sausage at all. The elimination would be done when analysing the data. On the next screen, respondents were told to imagine themselves in a supermarket, doing groceries for that night's dinner. The respondents were told that, as an idea for tonight's dinner, they were considering making the typical Dutch meal "stampot boerenkool met rookworst" (mashed potato with kale and smoked sausages). The respondents were told they would be shown an image of a smoked sausage, laying on a shelf in a supermarket. They were also asked to indicate the likelihood of buying the smoked sausage.

On the next screen, respondents were asked to fill in their age and gender. After the respondents filled in all questions, they were thanked for their participation and they were told that they could leave the survey, see appendix 3.5.1 for images of the whole survey.

4 Results

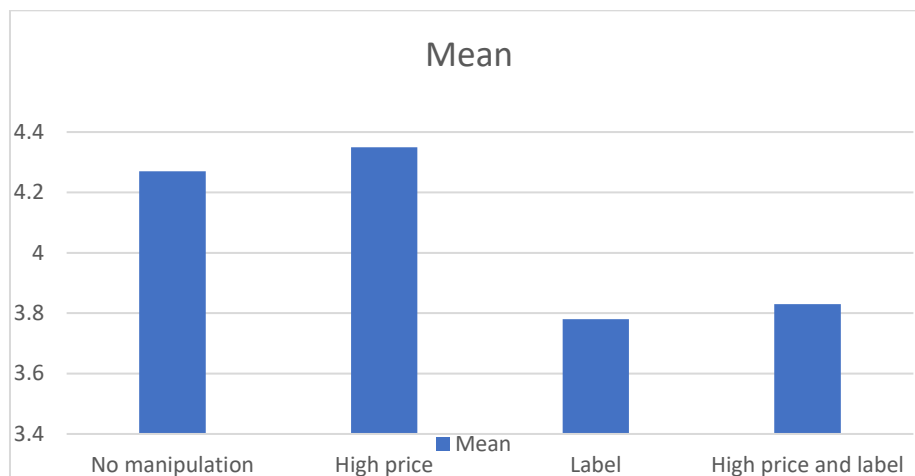
4.1 Descriptive statistics

For the data analysis, 42 respondents who claimed to be vegetarian were removed. After this, the respondents that indicated not to be vegetarian, but indicated to like smoked sausage less than a score 3 on the 7-point scales, where 3 = dislike, 2 = very much dislike and 1 = absolutely dislike, were removed. This group contained 18 respondents, which led to an analysis of 227 respondents. Table 1 shows the distribution of the respondents between the four groups. Figure 1 shows the means of the four groups.

Table 1: Number of respondents per group

Groups	N
1	52
2	51
3	64
4	60
Total	227

Figure 2: Mean purchase intention of the four groups



4.2 Purchase intention

In Figure 1 we see, that the purchase intention of group 1 ($M = 4.27$) and group 2 ($M = 4.35$) is higher than the purchase intention of group 3 ($M = 3.78$) and group 4 ($M = 3.83$). This was expected for group 1 (control group), however, it is unexpected that group 2 (higher price) has the highest purchase intention.

Interaction effect

First, we tested for an interaction effect. A possible interaction effect was tested to rule out the possibility that the influence of High price on purchase intention depends on the presence of a label, or similarly that the influence of a label on purchase intention depends on the price level. In other words, we test whether the influence of both label and price together on purchase intention is different from the sum of both. If, there is a significant interaction effect, the difference in purchase intention between the group that saw a high price or a low price is influenced by the attachment of a label and the difference in purchase intention between the group that saw a label and that did not see a label was influenced by the price.

To test for an interaction effect between label and high price, an interaction was included in an ANOVA analysis. There was no statistically significant interaction effect ($F= 0,007$, $p = 0,936$). This means that the differences in purchase intention between the group that saw a high price or a low price is not influenced by the attachment of a label. This also means that the differences in purchase intention between the group that saw a label and that did not see a label is not influenced by the price.

Hypothesis 1

To test the first hypothesis, an independent t-test was conducted to test whether the mean purchase intention is lower for the respondents that saw a high price than for the respondents that saw a low price. There was not a significant difference in the scores for high price ($M=4.07$, $SD=1.51$) and low price ($M=4.00$, $SD=1.46$) conditions; ($t(225)=-0.366$, $p = 0.3575$). P is higher than 0.05 , so there is no significant difference between the means of the two groups.

This means that hypothesis one is rejected. An increase in price does not lower meat consumption.

Hypothesis 2

To test the second hypothesis, an Independent t-test was conducted to test whether the mean purchase intention is lower for the respondents that saw a label than for the respondents that did not see a label. There was a significant difference in the scores for label

(M=3.81, SD=1.41) and no label (M=4.31, SD=1.52) conditions; ($t(225)=2.586$, $p=0.005$). P is lower than 0.05, so there is a significant difference between the means of the two groups. This means that hypothesis two is accepted. A label about the unsustainability of the meat product decreases meat consumption.

Hypothesis 3

To test the third hypothesis, an independent t-test was conducted to test whether the mean purchase intention is lower for the respondents that saw a high price than for the respondents that saw a label. There was a significant difference in the scores for high price (M=4.35, SD=1.14) and label (M=3.78, SD=1.431) conditions; ($t(113)=-2.029$, $p=0.0225$). P is lower than 0.05, which means that the label group has a significantly lower mean than the high price group.

This means that hypothesis three is rejected. An increase in price does not have a larger effect than the attachment of a sustainability label has. However, the attachment of a label does have a larger effect than a price increase.

5 Conclusion

This research tried to answer the question: “How can Dutch consumers be stimulated to buy less meat: an increase in price or the attachment of a sustainability label?”. To conduct this research, a literature study was conducted together with an experiment to examine the purchase intention of consumers towards smoked sausages.

In the experiment, three hypotheses were tested. These hypotheses were:

1. An increase in price decreases meat consumption.
2. A label about the unsustainability of the meat product decreases meat consumption.
3. An increase in price has a larger effect than the attachment of a sustainability label.

From the results of the experiment, it appeared that an increase in price, in which all the costs of all external effects are included, did not lower the purchase intention of the smoked sausage. Therefore, the first hypothesis is rejected.

It appeared that the attachment of a label, where the unsustainability of the meat product was compared with the number of minutes consumers could take a shower instead, did lower the purchase intention of the smoked sausage. Therefore, hypothesis two is supported.

Finally, it appeared that the attachment of a sustainability label lowered the purchase intention of the smoked sausage more than the increase in price did. Therefore, hypothesis three is rejected.

From this quantitative research, it resulted that the attachment of a label about the unsustainability of the meat product is the best way to stimulate Dutch consumers to eat less meat. An increase in price will not work to lower the purchase intention.

6 Discussion

This research was based on the work of two studies conducted in Australia and the United States, where respectively was examined if a higher price or the attachment of a sustainability label would lower meat consumption. This research is based on these two studies and tries to examine if the two manipulations, used in the two pieces of research, would work in the Netherlands.

6.1 Research implications

After the analysis of the data, it appears that a price increase did not lower the purchase intention of the Unox Rookworst. This is not according to the expectation of hypothesis one, which claimed that a price increase would lower meat consumption.

A possible explanation for this could be that the price elasticity of meat is -0.2 (Vergeer, Rozema, Odegard, Sinke, 2019), which means that the price elasticity of meat is highly inelastic. Inelastic price elasticity means that the demand for the product barely moves if the price of the product increases. This means, when consumers see that they have to pay a higher price for the product than before, they will simply accept the fact that they have to pay a higher price for meat and would still buy the meat product.

It appears that a label about the unsustainability of the meat product lowers the purchase intention of the Unox Rookworst. This is according to the expectation of hypothesis two, which claimed that a sustainability label would lower meat consumption. With a label, that makes an easy comparison between the unsustainability of meat and something consumers understand, the psychological distance decreases in the temporal, spatial and hypothetical dimensions and the level of construal is lowered. The temporal distance decreases because consumers can see that they can change their purchase behaviour now to reduce their contribution to global warming, of which the effects will happen in the future. The hypothetical distance decreases because with this label consumers can see what their actual contribution to global warming is with their consumer behaviour. Consumers see that they actually influence global warming and the vague concept of sustainability becomes less vague for them. Because of this label, people think about global warming when buying meat, which results in a lower purchase intention of meat.

6.2 Contribution to the existing literature

This research is a contribution to the existing literature of decreasing meat consumption because earlier studies did not give conclusions about the effect to lower the meat consumption of Dutch consumers with a price increase or a sustainability label. This research contributes to insights into the purchase intention of consumers concerning meat consumption. It can be concluded that an increase in price does not lower the purchase intention of meat and that a sustainability label does lower the purchase intention of meat. The outcomes of this research have practical relevance. Based on this research, the Dutch government can use this research to implement a sustainability label on meat products to achieve the goals stated in the Paris Agreement. However, the implementation of a label would be met with resistance. Meat producers would sell less meat and their profits would decrease. Despite the resistance, the Dutch government should think about this implementation, because to achieve the goals stated in the Paris Agreement, we need to reduce our emission of greenhouse gasses.

6.3 Limitations and future research

This study examined if the purchase intention of the 'Unox Rookworst' would change when manipulating this product. However, no examination was done about other meat products. The outcomes of this research are only reliable in combination with a smoked sausage, it is not clear if the purchase intentions of Dutch consumers would change when they had to consider buying another type of meat. According to 'The Netherlands Nutrition Centre', pork is the most consumed type of meat among Dutch consumers. This suggests, that the purchase intention of smoked sausages would change less with a manipulation, than the purchase intention other types of meat would (Voedingscentrum, 2020). However, there could be other explanations than the preference of pork for explaining the fact that pork is the most consumed type of meat in the Netherlands. This could be, for example, the fact that pork is cheaper than beef (De Bruyn, et al., 2018)

This would mean that the purchase intention of consumers would change less than it did in the case of a smoked sausage.

The mean age of the respondents was 23.6 years. This is not a representative mean for the Dutch population if the respondents' age was distributed normally, the mean age of this sample would be the same mean as the Dutch population has, namely 42 (CBS,2019). This

means that relatively more younger people filled in the questionnaire. Younger people could have other values concerning meat consumption and global warming than elderly people. Furthermore, it can be assumed that younger people are more price-sensitive than elderly people. It could be possible that younger people would pay less for a smoked sausage than elderly people.

The questionnaire was mostly filled in by students at the Wageningen University and Research. Students of the Wageningen University and Research could be more aware of sustainability measures than students of other Dutch universities. This is because Wageningen University and Research attracts, generally, students who care more about the environment than students of other universities.

It is not clear whether respondents' behaviour is the same as their intentions. Respondents might say that they would make these choices, but when they are doing groceries, consumers might make different choices. This is known as 'the intention-behaviour gap' (Ajzen, 1991).

In the survey, respondents might have said that they would not buy the smoked sausage, however, they might act differently when they are doing groceries.

This could declare why a price increase does not change the purchase intention. Consumers might have said in the survey that they do not mind paying extra for a smoked sausage, however, when the consumers really have to pay they might act different and choose a cheaper product instead of the smoked sausage.

Future research needs to examine whether the use of a sample, representative for the Dutch population, would come up with the same outcomes as this research. Future research should also take into account 'the intention-behaviour gap'. This could be done, for example, by letting respondents do groceries in a real supermarket. Only after this is done, the findings can be used to implement them in reality.

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Appendix

Appendix 3.2.1: images of the manipulations

Image 1: No manipulation



Image 2: Price increase



Image 3: Price increase and sustainability label



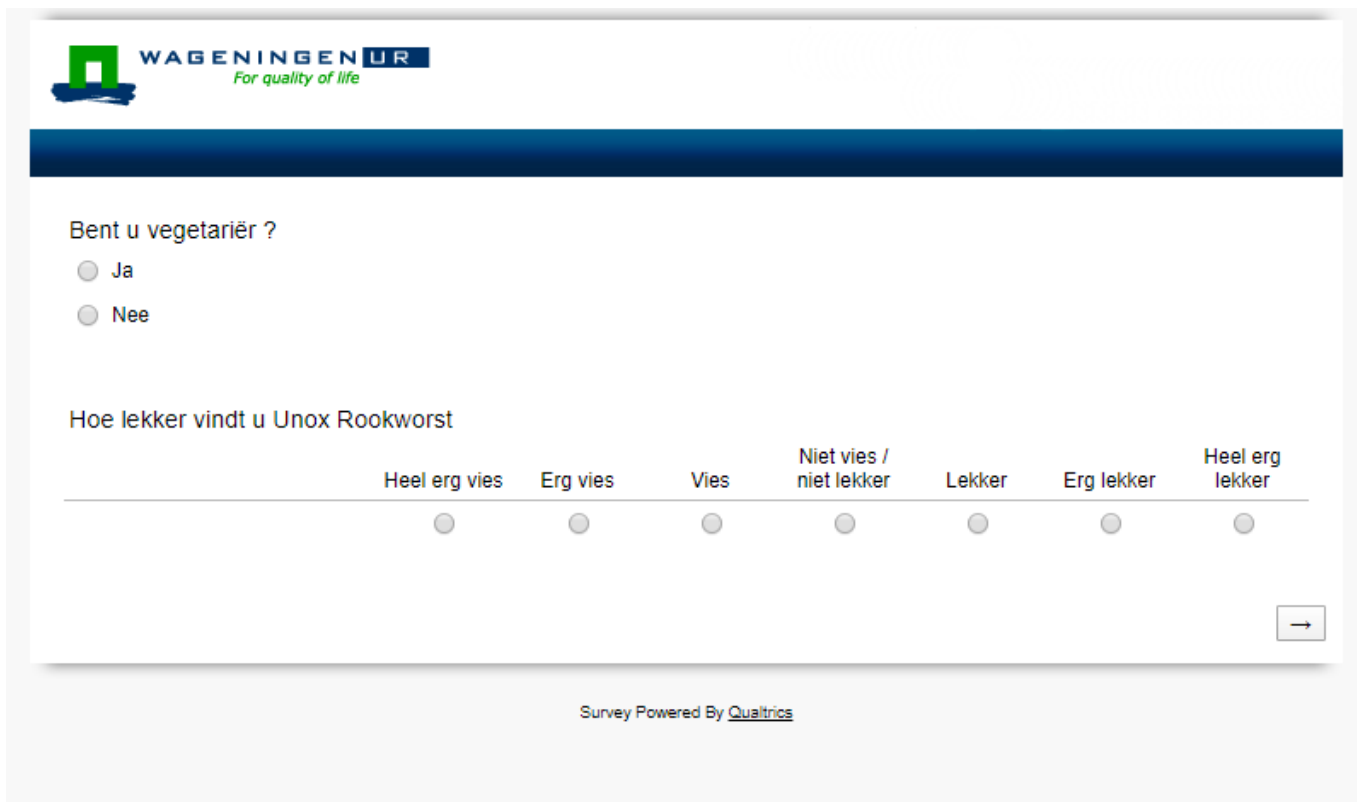
Image 4: sustainability label



Appendix 3.5.1: Example of the survey for respondents in the High price and Label group



The image shows the first screen of a survey. At the top left is the WageningenUR logo with the tagline "For quality of life". Below the logo is a dark blue horizontal bar. The main text reads: "Welkom bij deze enquête voor mijn Bachelor thesis. Heel erg bedankt dat u mee wilt werken aan dit onderzoek. Deze vragenlijst zal een paar minuten van uw tijd in beslag nemen en de antwoorden zullen volledig anoniem blijven en alleen gebruikt worden voor dit onderzoek. In dit onderzoek wordt er gekeken naar het koopgedrag van consumenten met betrekking tot de Unox rookworst." At the bottom right of the text area is a right-pointing arrow button. At the bottom center of the screen, it says "Survey Powered By Qualtrics".



The image shows the second screen of the survey. It features the same WageningenUR logo and dark blue bar at the top. The first question is "Bent u vegetariër ?" with two radio button options: "Ja" and "Nee". The second question is "Hoe lekker vindt u Unox Rookworst" followed by a horizontal scale with seven points. The labels from left to right are: "Heel erg vies", "Erg vies", "Vies", "Niet vies / niet lekker", "Lekker", "Erg lekker", and "Heel erg lekker". Each label has a radio button below it. At the bottom right of the scale area is a right-pointing arrow button. At the bottom center of the screen, it says "Survey Powered By Qualtrics".

Situatieschets:

Beeld u zich in dat u in een supermarkt bent. U bent boodschappen aan het doen voor het avondeten voor vanavond. U zit er aan te denken om vanavond "Stamppot boerenkool met rookworst" te eten. U krijgt zometeen een plaatje van een rookworst te zien, dat in een schap ligt in een supermarkt. U zult gevraagd worden aan te geven hoe waarschijnlijk het is dat u het product zult kopen.



Survey Powered By [Qualtrics](#)



Hoe waarschijnlijk is het dat u dit product zult kopen?

Niet onwaarschijnlijk / niet waarschijnlijk

Heel erg onwaarschijnlijk Erg onwaarschijnlijk Onwaarschijnlijk Niet onwaarschijnlijk / niet waarschijnlijk Waarschijnlijk Erg waarschijnlijk Heel erg waarschijnlijk

● ● ● ● ● ● ●



Wat is uw geslacht?

- Vrouw
- Man

Wat is uw leeftijd?

0 10 20 30 40 50 60 70 80 90 100



Survey Powered By [Qualtrics](#)

Bedankt voor uw tijd om aan deze enquête deel te nemen.
Uw antwoord is geregistreerd.

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