Broiler Welfare and the Consumer

EXPLAINING THE CITIZEN-CONSUMER GAP IN THE NETHERLANDS

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Preface

Before you lies the thesis ''Broiler Welfare and the Consumer: Explaining the citizen-consumer gap in the Netherlands''. It was written to fulfil the graduation requirements for the Master in European Governance at Masaryk University and Utrecht University. The research and writing of the thesis were conducted between February and the beginning of July 2020.

I would like to thank my supervisors for all the support along the way. I also wish to thank my colleagues at the Wiardi Beckman Stichting for a very pleasant intern experience and for helping me to find respondents for the research. Also, I want to thank my family and friends for letting me discuss my subject with them and for the encouragement.

I hope you enjoy the reading.

Emmi Suvaal

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Abbreviations

ACM - Dutch Consumer and Market Authority

CBS – Netherlands Statistics

COT – Chicken Of Tomorrow

CWA – Consumer Welfare Approach

EU – European Union

EU-28 – European Union including the United Kingdom

FAW – Farm Animal Welfare

H - Hypothesis

MS – Member State(s)

NVWA- Dutch Food Safety Authority

OECD - The Organization for Economic Co-operation and Development

Q – Question

SDS – Sudden Death Syndrome

WTP – Willingness to Pay

Table of Contents

Chapter 1: Introduction

In the European Union (EU), poultry meat is the second most produced and consumed meat after pork (Augère-Granier, 2019). Some farms contain a total of more than 100.000 chickens as the poultry meat sector is known for its intensive farming systems that feature the use of fast-growing breeds and high stocking densities and approximately 90 percent of broilers in the EU are raised in such farming systems (Augère-Granier, 2019). The EU chicken meat producers are supported by the common agricultural policy through which they can receive investment funds. The poultry sector is governed by EU legislative acts on trade and marketing standards, food safety, environmental protection, public and animal health, and animal welfare. There are, however, concerns on the insufficient implementation of the EU Directive on the protection of broilers in some EU Member States. Despite regulation, intensive production systems are creating issues for poultry welfare, the environment and public health (Place, 2018; Nepluvi c, n.d.; Augère-Granier, 2019).

This study was inspired by an agreement from 2015 in the Netherlands on a concept called the Chicken of Tomorrow. The Chicken of Tomorrow was a new minimum standard, mostly aimed at better animal welfare standards, but the agreement was deemed as violating national and EU competition law (Bos, Van Den Belt & Feindt, 2018). The main reasons for this ruling were the conclusion that the benefits did not outweigh the costs and the fact that the Dutch Consumer and Market Authority found that Dutch consumers are not willing to pay the price for the Chicken of Tomorrow (Bos, Van Den Belt & Feindt, 2018). Thus, Dutch consumers seem prefer to purchase cheaper chicken meat with lower animal welfare standards.

However, alternative chicken meat production (free range or organic) practices are increasing in many EU countries and many Europeans would like to see an improvement in farm animal welfare standards (European Union, 2015; Augère-Granier, 2019). On the other hand, the market is still mostly supplying standard chicken meat with low animal welfare standards and it is the cheapest to produce. Producers of poultry meat are able to react quickly to market signals (Zootecnica International, 2017; European Union, 2015). The market seems to fail, however, in providing better farm animal welfare as a result of demand for animal friendly products. This demand simply does not seem to be great. Could this be explained by the existence of a citizen-consumer gap? People as citizens value farm animal welfare, but this attitude might not translate sufficiently into consumer behavior (Harvey & Hubbard, 2013). Chicken meat products with better animal welfare standards are generally more expensive, thus consumers might not be willing to pay more for higher animal welfare standards. Other factors, such as a lack of knowledge or information on farm animal welfare or a lack of trust in quality labels, could also contribute to this citizen-consumer gap (Jahn, Schramm & Spiller, 2005; Mulder & Zomer, 2017).

The research area for this study is the country of the Netherlands. Its citizens show the most positive attitude towards the protection of farm animal welfare but have the least positive attitude towards the improvement of farm animal welfare (European Union, 2015). Nowadays, the Chicken of Tomorrow is available almost everywhere in the Netherlands. Still, according to research by Dutch animal welfare organization Wakker Dier, most Dutch supermarkets have limited availability of broiler friendly chicken meat (Wakker Dier b, 2020). This could thus mean that there is a citizen-consumer gap in the Netherlands. How can this be explained and does this mean animal welfare policies should change? The aim of this research is to answer these questions. Thus, the main research question and corresponding sub questions are:

Does a citizen-consumer gap exist regarding broiler welfare in the Netherlands, how can it be explained, and what does this mean for animal welfare policies?

Sub question 1: *Is there a citizen-consumer gap regarding broiler welfare in the Netherlands?*
Sub question 2: *How can this be explained?*
Sub question 3: *What does this mean for animal welfare policies?*

There is both academic as well as societal relevance to answering the research question. Research on the citizen-consumer gap and the factors that influence consumer behavior is very limited, especially on the situational factors. Also, the research that does exist on the factors influencing consumer behavior can be contradictory. Researchers like Kendall, Lobao and Sharp (2006) believe, for example, that a number of demographic factors such as gender and education level influence consumer behavior while others claim these factors are actually poor predictors (Bray, Johns & Kilburn, 2010). Ethical consumption is a complicated phenomenon with emotional, situational, and demographic factors possibly playing a role (Bray, Johns & Kilburn, 2010). It is not clear from existing research what the best way is to recognize a citizen-consumer gap. It is thus important to conduct this study as it contributes to the scientific research and can inspire further studies as well. Also, as this study is conducted in the Netherlands only, it can result in research in other EU countries and inspire changes in EU wide animal welfare policies. The relevance of this research for society as a whole is vast as well. As mentioned before, many Europeans like to see an improvement in animal welfare. If a citizen-consumer gap and the factors related to it can be recognized, this could give scientifically supported reasons for changing animal welfare policies resulting in better farm animal welfare. In turn, this could result in better public health as well as more attention for the environmental aspect.
The thesis will start with background information that is needed for understanding the context in which the research is conducted. Afterwards, all relevant theory is discussed that is necessary for answering

the research question. Then the research design is explained followed by a description of the sample that was used. Thereafter, the results are discussed, and the document will end with the conclusion which answers the research question.

Chapter 2: Research Background

This chapter provides background information that is needed to understand the importance of the research and the context in which the research is conducted. It first provides an economical and legal background by discussing the poultry meat industry and legislation on farm animal welfare at the European as well as at the Dutch national level. It then discusses the issues that arise from the poultry meat industry related to animal welfare, public health, and the environment. Lastly, the concept of the Chicken of Tomorrow is discussed to shed a light on the role of competition law in creating better animal welfare in the European Union and the importance of consumers' choices and willingness to pay (WTP).

2.1 The European and Dutch Poultry Meat Industry

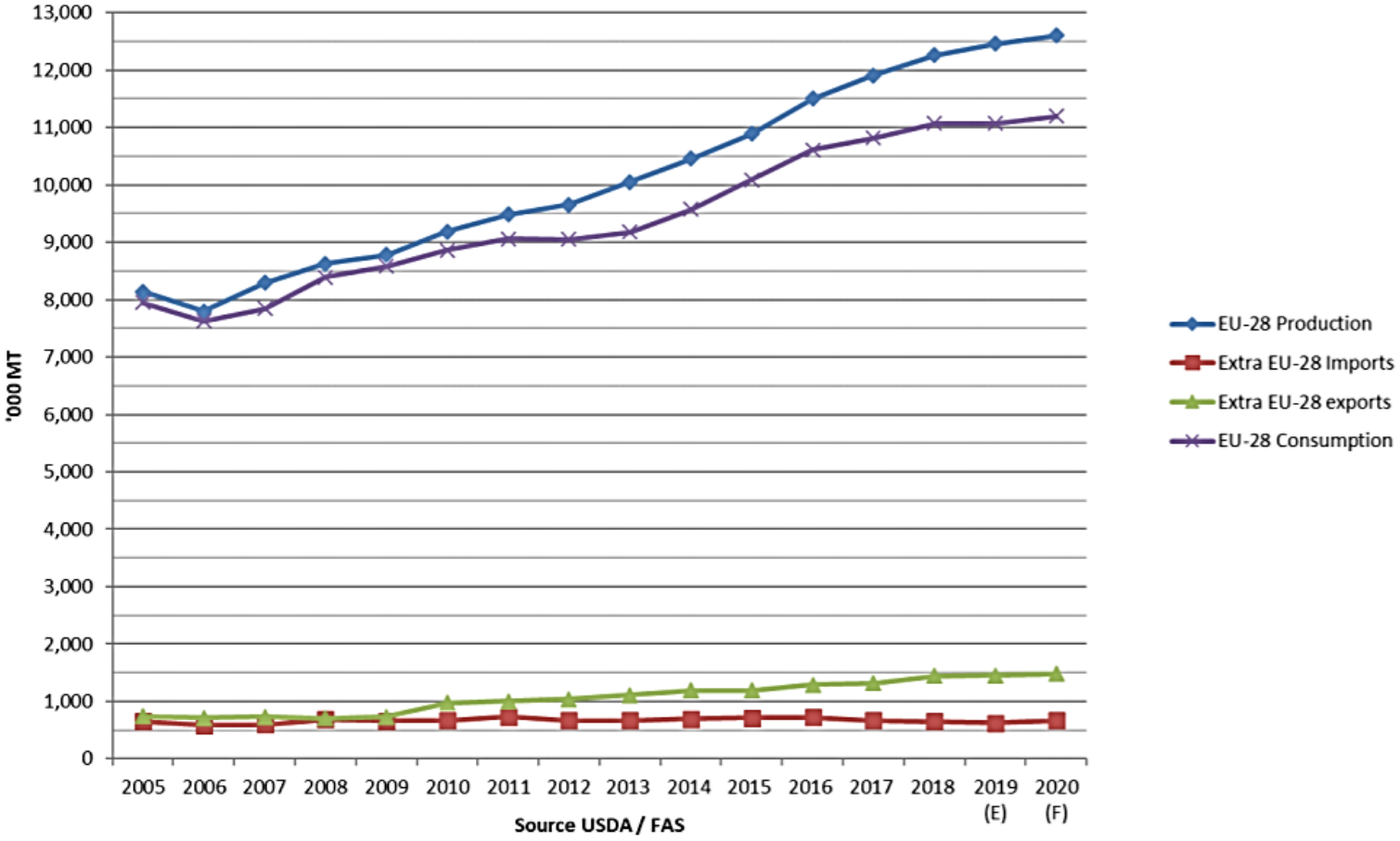
Because the EU has one single market without any regulatory obstacles within its borders, which the Netherlands is a part of, it is relevant to firstly discuss the European poultry meat sector (European Commission a, n.d.). Europe is currently the third largest poultry meat producer in the world with the industry employing around 300.000 people and the annual sales of poultry meat in Europe are worth more than 32 billion euros (Avec, 2020). The European Union is also the third largest exporter and fourth largest importer of poultry and the expectation for the sector is that poultry will become the world's most widely consumed meat in the year 2020 (Avec, 2020). This already indicates that the market for chicken meat is of great importance for many European countries and that this will most likely remain the case.

The poultry meat sector has many advantages compared to other meat sectors, because its production cycle is relatively short. This enables the producers to respond quickly to market signals. Furthermore, the biological production cycle for poultry is only about 5 months, providing the producers with a high level of flexibility and adaptivity (Zootecnica International, 2017). Poultry meat is also more affordable than other meats, free of any religious restrictions, convenient and has a good health image (nutritious and low fat content) making it a popular meat product amongst consumers (Zootecnica International, 2017).

The flexibility and adaptivity of poultry meat producers have made a quick change of the sector possible in the EU by adapting to consumer demands and expectations. This has led to a general growth in poultry meat consumption and a change in product offer as well (Zootecnica International, 2017). In the last decade, the production of whole chickens has reduced while that of cuts and processed products has increased as a reaction to consumer demand. Changing consumer preferences resulted in a surplus of dark meat (wings, thighs, and drumsticks) leading to exports to the world market

(Zootecnica International, 2017; Christensen, 2019). Nowadays, the EU-28 has a chicken meat trade surplus which is expected to increase in 2020, fed by demand in Ukraine, Asia, and Sub-Saharan Africa. Demand for EU poultry meat exports will most likely remain strong, with about 98 percent of the production consisting of broiler meat and the remaining 2 percent being meat from hens, turkeys and ducks (Audran, 2019; Augère-Granier, 2019; Van Den Hurk, 2019). Figure 1 below shows that both the imports and exports as well as production and consumption of chicken meat in the European Union have increased in the last 2 decades.

Figure 1: EU-29 chicken meat consumption, trade and consumption



Source: Audran (2019)

In 2018, the EU produced approximately 15 million tons of poultry meat which represents a rise of 3.3 million tons in 10 years. EU self-sufficiency in chicken meat has also increased in those 10 years, from 100 percent in the year 2008 to 106 percent in 2018. About 5 percent of the EU's total agricultural output is accounted for by poultry with broiler (young chicken for consumption) production being the largest sub-sector (Augère-Granier, 2019; Eurostat, 2020).

The broiler industry in the Netherlands is strongly developed and has a rather high share of about 8 percent in the European poultry meat production and is mostly used for export which is accountable

for more than 60 percent (Mulder & Zomer, 2017). The exported produce mainly goes to other EU-28 countries but to countries outside of the EU as well with approximately 20 percent of EU exports to non-member states coming from the Netherlands, and there are about 500 broiler companies in the Netherlands with 90.000 broilers on average (Mulder & Zomer, 2017). Thus, the Netherlands is a big player in the European market when it comes to the production of broiler meat.

The broiler meat sector in the Netherlands is also unique in the world since it has developed into a very diverse sector. The Dutch broiler meat sector has responded to the demand for multiple chicken meat concepts based on health, animal welfare and environmental considerations, and local produce (Voedingscentrum, 2019). The Dutch broiler meat sector is also one of the most efficient in the world with the country conveniently located in the Berlin-London-Paris triangle and the Netherlands has a very strong logistic network overall enjoying a strong position in the European market being the second largest exporter of chicken meat (Rabobank, 2018). The Netherlands is also a country with a great ability to innovate and conduct research to develop the sector (Rabobank, 2018).

Nowadays, poultry meat is a mass consumer product all over the world with the highest consumption rates documented in industrialized Western countries. According to data from the OECD, consumption of chicken meat per person has increased by 70 percent since 1990 in rich countries (The Economist Newspaper, 2019). Numerous factors have resulted in the evolution of our diets where chicken became a classic part of Western cuisine. Chicken meat has the reputation of being a clean and healthy meat. In the past and present, doctors have warned people against the health risks that come with eating red meat such as heart disease and colon cancer, thus giving red meat a bad reputation. Also, chicken meat has simply become cheaper. It has been relatively easy for chicken farmers to cut costs in the production process by keeping more chickens per square meter for example. These practices have resulted in poor animal welfare which makes good legislation on farm animal welfare (FAW) now more important than ever (The Economist Newspaper, 2019).

According to research by Nepluvi (a, n.d.), the Dutch association of poultry meat producing companies, chicken meat is mostly popular in the Netherlands due to its good image. Chicken meat is mostly consumed because consumers find it tasty, easy to cook and it is part of many dishes. In the Netherlands, people ate more than 18 kilos of chicken meat annually in 2016 of which 90 percent is purchased at the supermarket and the most popular part of the chicken for consumption is the breast being responsible for 62 percent of the turnover on pre-packed chicken (Nepluvi a, n.d.).

While consumers play a large role in the mass consumption of chicken meat, the European Union has also been involved in sustaining the consumption of meat in general. The EU has been setting up numerous projects and campaigns to increase meat consumption and has spent tons of millions of euros to rebut news on the mistreatment of animals to counter the decline in the consumption of meat (Boffey, 14th February 2020). In the last 3 years, 21 meat marketing campaigns were carried out by the

EU. The European Union has thus been accused of taking an approach that is indefensible in the light of climate concerns and health (Boffey, 14th February 2020). Clearly the EU is concerned with protecting meat producers and takes a very economy-driven approach and while the EU has legislation on farm animal welfare it does not seem to be a priority when revenue is at stake.

2.2 European and Dutch Legislation on Farm Animal Welfare

All EU countries have ratified the European Convention for the Protection of Animals kept for Farming Purposes relating to animal feed, care, and housing (Council Directive 98/58/EC). These rules reflect the 5 freedoms: freedom from [1] hunger or thirst, [2] fear and distress, [3] discomfort, [4] pain, injury and disease and [5] freedom to express normal behavior (Miele, Murdoch & Roe, 2005; European Commission, n.d.). The aim of this animal protection legislation is to spare all animals of any unnecessary suffering in three main areas: transport, farming, and slaughter (Stevenson, 2012).

To avoid unfair competition between producers in the EU, minimum animal welfare standards have been established. The standards that are most important relate to feed, water supply, space, natural behavior, lighting, veterinary aid and good stockmanship. The European legislation is complemented by national legislation as well (Van Wagenberg, Brouwer, Hoste & Rau, 2012). Especially countries in North West Europe, such as the Netherlands and Germany, have added more animal welfare regulation complementing the EU legislation. Also, in these two countries the retailers play a driving role regarding the promotion, development and sales of poultry meat that has been produced under conditions with welfare standards that go beyond the legislation (Van Horne, 2018).

The minimum rules for the protection of chickens for meat consumption are established in Directive 2007/43/EC and aims to provide a good level of health and welfare under good indoor climate conditions for chickens. The Directive sets out a number of provisions that aim to prevent the worst welfare problems that arise from industrial broiler production. It sets a maximum stocking density of 33kg/m2 but permits Member States (MS) to keep broilers up to a maximum density of 39kg/m2 (19 chickens per m2) if a certain number of welfare conditions are met. It is possible that a MS allows broilers to be kept up to a maximum of 42kg/m2 by way of further derogation (Van Horne, 2018; Stevenson, 2012). This would mean that further criteria are fulfilled such as consistently low mortality rates. New legislation establishes a number of other conditions such as ventilation, litter, and lightning requirements. Moreover, the Commission is also provided with the possibility to introduce additional measures in the future (Van Horne, 2018; Stevenson, 2012).

The Netherlands has established their general rules on animal welfare in a framework law called the Animal Act. The Animal Act contains the relevant EU legislation as discussed before with additional strict welfare requirements and establishes that animals have an intrinsic value (Animal Act, Article

1.3) which means that animals have a value that is separate from human interests and this must be taken into account (Kossen & Verbraak, 2017). Even though the Netherlands added some more strict requirements in some categories, the law on broiler chicken density is identical to that of EU law (Rijksdienst voor Ondernemend Nederland, n.d.).

The Dutch government enforces animal welfare law through the Dutch Food Safety Authority (NVWA) with the task to monitor slaughterers, livestock farmers and transporters. Unfortunately, the capacity of the NVWA is so limited and the livestock sector in the Netherlands so large that they only monitor companies approximately once every 8 years (Kossen & Verbraak, 2017). Furthermore, stakeholders in the sector have been indicating that sometimes it is unclear to the inspectors and livestock farmers what the official standards are and thus also whether the livestock farmer meets them or not (Kossen & Verbraak, 2017). From this information, it becomes clear that the enforcement of important animal welfare laws lacks the ability or salience for the laws to be effective in protecting the welfare of farm animals. Livestock farmers are also able to keep their animals to higher standards than required by law. In this case the company can get certified with a quality mark (Kossen & Verbraak, 2017).

2.3 Broiler Welfare Issues

There are many different aspects influencing the welfare of broilers related to housing conditions, care, and the breed of the chickens. In the European Union, less than 5 percent of broiler chickens are of a slower growing breed associated with better animal welfare (McDougal, 26th April 2018). There are a number of reasons for why the use of a slower growing broiler breed results in better animal welfare. Firstly, slower growing breeds show lower mortality rates which is mainly because fast growing breeds suffer from Sudden Death Syndrome (SDS) and ascites more frequently (Compassion in World Farming, 2013). Concerning SDS, the chickens suffer for approximately one minute before dying while only a minute before the time of death they seem healthy. There is more damage to animal welfare when a chicken suffers from ascites where the animal can suffer for a long time before death. As a result of the disease the broiler suffers from changes in liver function, hypertrophy, dilatation of the heart, large amounts of fluid in the abdominal cavity, hypoxaemia and pulmonary insufficiency. These symptoms are caused by a lack of oxygen supply to their tissues and environmental factors that limit oxygen supply (Julian, 2000; Bessei, 2006). Knowing the symptoms these animals suffer from and the fact that it is caused by a lack of oxygen, is indicating that the conditions in many chicken barns must be resulting in very low levels of farm animal welfare.

Fast growth in broilers is also the main factor in causing leg problems such as twisted legs and tibial dyschondroplasia which can be reduced by genetic selection (Compassion in Food Business, n.d.; Bessei, 2006). Leg issues impair the ability of chickens to move around and results in them spending

more time sleeping and lying down. It has been proven that the leg problems result in pain because when treated with anti-inflammatory drugs these chickens are often more able to move around (Compassion in World Farming, 2013). Contact dermatitis (hock burns, breast blisters and foot pad lesions) are also a big problem arising in fast growing breeds. This is also a painful condition for the broilers and is caused by poor litter quality and sitting for long periods of time (Bessei, 2006).

The stocking density and the quality of litter in broiler chicken barns are also extremely important for the broilers' welfare. Experiments have proven that when stocking density exceeds approximately 30kg/m2 under deep litter conditions, feed intake and growth rate are reduced (Bessei, 2006; Lolli, Bessei, Cahaner, Yadgari & Ferrante, 2010). These effects reduced when boilers were held in cages or when the floors were ventilated, thus it is assumed that a high litter temperature negatively impacts growth rate. Since a high stock density also increases the temperature inside the barn and makes it more difficult to breath inside, this causes heat stress and reduces growth rates as well (Compassion in Food Business, n.d.). A high stocking rate also increases the risk of dermatitis and leg problems. Furthermore, when the floor of the barn is completely covered by chickens, the litter cannot ventilate sufficiently (Compassion in World Farming, 2013). Since up to a quarter of broilers in the European Union are kept at a stocking density of about 42kg/m2, many of them are likely to suffer from health conditions. Furthermore, Most MS have not given any guidance to inspectors to assess if ventilation in barns is sufficient (McDougal, 26th April 2018).

Difficulty to breath is also caused by the litter quality and to make matters worse the litter in a broiler farm is usually not cleaned out during a broiler's life because of biosecurity concerns. The amount of ammonia and water in the litter has been proven to cause dermatitis (Bessei, 2006). The litter can become wet because of water spillage, the litter material and diet composition since this can result in diarrhea. When the litter becomes wet the chickens are not able to perform certain behavior such as scratching and dustbathing which is important for their comfort and maintenance. In this case, enrichment like straw or bales could improve the animal welfare standards inside the barn (Compassion in World Farming, 2013).

The last aspect for the welfare of broiler chickens to be discussed here is the lighting inside the barns. When broilers are kept in artificial light for long periods of time the chickens eat more, which stimulates growth. This also, however, makes them to become exhausted. Although EU legislation requires at least 6 hours of darkness per day, these do not necessarily have to be uninterrupted and the minimum required uninterrupted period of time of darkness per day is 4 hours in the EU (Compassion in World Farming, 2013). When extended dark periods are implemented this has positive effects regarding mortality rates, leg problems and metabolic disorders (Bessei, 2006). The chickens are then able to develop a circadian rhythm which is considered to be an important indicator of animal welfare. About 8 uninterrupted hours of darkness would make this possible, but it is unclear from

existing research whether this minimum period of time is necessary (Bessei, 2006). So, as becomes clear from this section, there are many different aspects influencing broiler welfare inside the barns where the animals are raised. The bad quality litter, heat, lack of space, lack of ventilation, wet litter, too many hours of artificial light and the use of fast-growing breeds result in lack of oxygen, health problems, unnatural behavior and even death.

2.4 Environmental and Public Health Issues

Besides the fact that poor animal welfare affects the broilers that suffer from certain housing conditions, it is also worth mentioning what the implications are for the environment and public health. Unfortunately, broiler welfare and environmental issues are often in conflict. With the intensification of animal production systems, their environmental impacts have declined as this is a result of improved production efficiencies due to scientific advances regarding for instance nutrition, the use of hormones and genetics (Place, 2018). However, on the other hand the inputs such as fossil fuels and antibiotics have negative environmental impacts. The concentration of broilers in an intensive animal system is likely to cause nutrient imbalances. Nutrients are mainly imported in the form of feed and these are not applied to a sufficient land base which can make nutrient emissions to the environment worse. Thus, one can observe that there are both negative and positive effects for the environment resulting from intensive farming systems (Place, 2018).

If all broilers would be kept in the most extensive systems, much more space would be needed to keep them which results in better animal welfare but also in environmental damage. The trick here is to switch to more extensive systems in a way that recourses are used more efficiently. Feeding systems can often be associated with both poor animal welfare and high levels of water usage and pollution. Feeding farm animals grain and soy would reduce pollution and use of space (Broom, 2019). In the Netherlands, for example, about 40 percent of greenhouse gas emissions from broiler farms are caused by the feed and about 30 percent comes from housing. Ammonia emissions can be tackled as well by changing the feed and litter among other things (Nepluvi b, n.d.).

While greenhouse gas and ammonia emissions are detrimental to public health by itself, the use of antibiotics in the broiler meat industry is seen as a very important factor. Antibiotics can be used in animal feed to promote growth but too much use of antibiotics can result in antimicrobial resistance which can possibly increase mortality in animals and humans. What the effect of the use of antibiotics in animals is on humans is, however, not entirely clear (Thorsen, 2014 August 7; Nepluvi c, n.d.). In 2018, the EU banned the use of antibiotics in farming that are aimed at preventing disease which will come into force in 2022. They estimate that about two-third of antibiotics in the EU are used for livestock. Lowering the stock density and the use of certain breeds can significantly lower the need for

antibiotics. Research in the Netherlands has shown that broiler farms that use slower growing breeds use more than 3 times less antibiotics than those that use a fast-growing breed (Compassion in World Farming, 2018). Using a slower growing chicken breed is thus both an improvement for animal welfare and public health. So, the EU is paying attention to the use of antibiotics in farm animals, but the question is also whether their law will be complied with. In 2006, an EU-wide ban on the use of antibiotics in feed as growth promotors already came into force (European Commission, 2005). However, in 2015 a research in the Netherlands showed that a significant share of broilers (25 percent) contained a certain resistance gene which makes the bacteria resistant against colistin which is often used in hospitals as a last resort (Nepluvi c, n.d.). Thus, again this is a sign that the enforcement of European law is not sufficient and illegal practices regarding the use of antibiotics in the broiler production industry are still occurring.

2.5 The Chicken of Tomorrow

In 2015, poultry farmers, chicken meat processors and supermarkets in the Netherlands agreed on a concept called the Chicken of Tomorrow (COT). The goal of this agreement was to create production of chicken meat products under better animal welfare conditions by 2020 (Bos, Van Den Belt & Feindt, 2018). Furthermore, it addressed environmental and public health concerns through reduced emissions and less use of antibiotics. Unfortunately, the Dutch Consumer and Market Authority (ACM) ruled that the agreement violated national and EU competition law, because the benefits (improved animal welfare) did not outweigh the costs (limited choice and higher price for consumers) but the main reason for this decision was that the ACM researched Dutch consumers' willingness to pay (WTP) and concluded that these consumers are not willing to pay the COT price (Bos, Van Den Belt & Feindt, 2018).

Arrangements about the production of broiler meat started in 2013 between the supermarket industry, the broiler meat processing industry, and organizations in the poultry industry (ACM, 2015). The goal of these agreements was to make the chicken meat that is being offered in supermarkets in the Netherlands more sustainable. The Dutch cattle breeding industry responded to public opinion on meat production methods and indicated that it would like to change production methods. The 'Different Meat 2020' initiative was signed and aimed to lead to the sale of only sustainably produced meat (ACM, 2015). A part of this initiative was the Chicken of Tomorrow and aimed to replace the regularly produced chicken meat with the Chicken of Tomorrow from the year 2020. All organizations involved in this initiative also agreed on numerous specific conditions for the COT (ACM, 2015):

- The use of a **slower growing chicken breed** (50 grams/day). This chicken breed needs less antibiotics and can move around easier.

- **More straw and distraction materials**. This decreases the risk of foot pad lesions.
- **Stricter requirements** to reduce the use of antibiotics. Antibiotics shall only be used in case of illness.
- **Fewer chickens per square meter**. This must be a 10 percent reduction.
- At least 6 consecutive **dark hours in the barns**. This will result in a natural circadian rhythm for the chickens which means they are more relaxed and suffer fewer injuries.
- **Use of RTRS-soy** in animal feed (100 percent). This is sustainably grown soy that is in accordance with 'Roundtable for Responsible Soy' standards.
- **Strict enforcement** of legal animal welfare standards. This should keep the number of injuries to breasts and foot pads to a minimum.
- **Environmental measures:** complete manure processing, use of green natural gas, increasing the share of European protein commodities, reduction of ammonia and particulate emissions and reducing the CO2 footprint.

The COT is a new minimum standard; thus, the supermarket chains are still able to continue the sales of organic chicken meat and chicken meat products that are produced under even better animal welfare conditions. The organizations involved agreed on the fact that they still have the possibility to have a profitable production method in the poultry industry. The arrangements do not apply to the chicken meat that is exported, which is about 70 percent of the Netherlands' national production and the chicken meat that is sold by market traders, butchers and poulterers are also not subject to the above-mentioned criteria (Bos, Van Den Belt & Feindt, 2018).

The private sector is expected to promote and innovate more sustainable animal products, derived from public opinion and the view of the Dutch government on the matter (Ministry of Economic Affairs, 2013). This, however, does not work when there are no efficiency savings possible that benefit both the consumers and the companies. Further progress would lead to the removal of non-sustainable products and higher product prices. Supermarkets are faced with a big dilemma: they can either take the risk of losing costumers when advancing alone or collaborate with their competitors and breach competition law (Bos, Van Den Belt & Feindt, 2018).

2.6 Relevant Competition Law

To understand why the Chicken of Tomorrow concept was not approved by the ACM, it is important to know the relevant EU and Dutch competition law their decision was based on. Article 101 of the Treaty on the Functioning of the European Union (TFEU) and Article 6 of the Dutch Competition Act contain the law on horizontal competition and cartels. Article 101 TFEU applies to those laws that

affect trade between MS and Article 6 of the Dutch Competition Law only applies to the Netherlands. Both of them forbid agreements between companies that distort, prevent or restrict competition unless it promotes technical or economic progress or improves the production or distribution of goods and allows consumers with a fair share of the benefits that result from the agreement (Article 101, 3 TFEU). When such agreements are made, they need to prove that it does not restrict competition or that it is indispensable because of the benefits to the consumers. A breach of competition law can result in rather severe punishment in the form of either fines or prison sentences (Food Ethics Council, 2011).

The ACM introduced a broad welfare concept in 2014 that recognizes the possibility to include animal-friendly and environmentally friendly production modes as well, while still being based on consumer preferences (ACM, 2014). The authority also conceded that coordination issues, such as a first-mover disadvantage, might be an argument for a market-wide agreement (ACM, 2014). However, according to the European Commission, it is possible to take future benefits for the consumers into account, but these benefits must be for the actual users of the relevant goods and services (Article 101 TFEU). Thus, it is not possible to include benefits for society as a whole (Ministry of Economic Affairs, 2014).

Taking animal unfriendly products off the market, such as fast-growing broiler chicken, cannot be allowed according to the ACM unless certain strict conditions are met. Also, the perceived benefits to the consumers must be quantified in monetary terms. When looking at past rulings of the ACM, agreements similar to the COT have been banned because of the direct effect on the retail price at the supermarkets. Thus, the COT agreement which would result in the removal of regular chicken meat from 95 percent of supermarkets was seen as restricting consumers' choice (Bos, Van Den Belt & Feidnt, 2018). However, the ACM did have to assess if the agreement could be justified by meeting the exemption criteria set out in article 101, 3 TFEU and article 6, 3 of the Dutch Competition Act (Bos, Van Den Belt & Feindt, 2018). There are four steps to these exemption criteria summarized by the ACM (2015):

1. The arrangement must contribute to the improvement of production or distribution, or to the promotion of technical or economic progress;
2. Consumers have to receive a "fair share" of these benefits;
3. The arrangement must be necessary and proportional to the attainment of the efficiencies that are realized by the arrangement; and
4. Sufficient residual competition must continue to exist in the market. In essence, animal welfare initiatives in the form of horizontal agreements among retailers that categorize specific products as low in animal welfare and remove them from the market have to demonstrate that this reduction in consumer choice creates a measurable benefit to consumers.

In sum, the horizontal agreement must demonstrate that the reduction of consumer choice creates a benefit to consumers and this benefit must be measurable. What becomes clear from this section is that the Dutch competition law is only protecting consumers interest rather than a broader concept of the public interest. At the same time, it is debatable how the concept of consumer interest should be interpreted. Traditional considerations of price, choice and innovation might not be sufficient and wider definitions such as sustainability concerns should be included. This legal debate is divided between economists and other social scientists, lawyers, and philosophers. While economists tend to focus on merely the price, other scientists would like to see a broader interpretation (Bos, Van Den Belt & Feindt, 2018).

A couple of questions arise from the information on the poultry meat industry in the Netherlands and the outcome of the Chicken of Tomorrow agreement. One could question if the ACM is the correct institution to determine whether agreements such as the COT are in line with competition law or whether a different approach should be taken to investigate such agreements. One could also question whether competition law must be altered to take into account agreements that benefit the welfare of animals or the environment. Also, if competition law will never allow for these types of agreements, what can be done to improve FAW? Is there a way to improve FAW through the market?

Chapter 3: Theoretical Framework

This chapter discusses all available literature that is relevant for both forming the research question and answering it. The chapter starts with the broadest information and will get more specific until it reaches the conceptual model that lays at the basis of the expectations for the outcome of the study. Firstly, it will discuss what role animal welfare plays in the market system and whether a market failure can be recognized. Thereafter, possible policy measures for improving animal welfare are discussed followed by a specification of the different quality labels and chicken meat concepts that exist in the Netherlands. The last parts of this chapter are focused on the citizen-consumer gap and the factors that influence consumer behavior and willingness to pay.

3.1 Animal Welfare in the Market

In competitive markets, firms and businesses strive to prosper and succeed and are encouraged to be as efficient as possible. Unfortunately, this means that there is always a trade-off between productivity and better animal welfare, because improving animal welfare often means increasing costs (Lusk, 2011). Lusk and Norwood (2011) even demonstrate that producers will not improve animal welfare, even if this is highly correlated with output. This is especially the case with intensive farming systems. In reality, production costs deriving from increased farm animal welfare can be substantially larger when compared to normal conditions. This cost difference depends on technology, branch, farm type and country (Grethe, 2017). Thus, improving the FAW standards on the livestock farm can have a substantial financial impact on the farmer's business.

There has been little research on farmers' decision-making process in the context of animal welfare, but we do know that farmers keep their livestock for the purpose of making a profit and have the most direct influence on the welfare of their animals. Farmers are influenced by many other considerations as well, such as farm succession, pride in their farm, attitude to risk and concern for their animals. The importance of profitability for the farmers generally depends on whether they are corporate enterprises or traditional farmers and the species of their livestock (Farm Animal Welfare Committee, 2011). The production of poultry is mainly managed by large enterprises where lifestyle issues are of less importance. Here, farmers have less relations with the animals as well which could influence their view on the importance of farm animal welfare (Farm Animal Welfare Committee, 2011).

If the costs deriving from better FAW are not rewarded by productivity improvement, we must question whether there is a market for animal welfare. If there is, the FAW costs should be compensated by a higher product price. Such a price increase does not need to be great, because an increase in production costs will then be covered by a small increase of the product's retail price (Farm

Animal Welfare Committee, 2011). In the case of the Chicken of Tomorrow, for example, many improvements were asked to be implemented (see 2.6) in the new minimum standard while the retail price only rose by 1.46 euro/kg (Bos, Van Den Belt & Feindt, 2018). According to many surveys, Europeans would like to see improvements in the welfare of farm animals (Augère-Granier, 2019). This does, however, not translate into consumers' purchasing choices in order to generate market demand. In the Netherlands, most supermarkets are mostly offering chicken meat products without quality labels such as discussed in 3.4 (AD, 2019; Wakker Dier b, 2020). This means that most of these broilers are still bred with poor welfare standards and shows us that market demand is insufficient in providing better animal welfare.

There are a number of observations that can be made here. Firstly, one could argue that there is a market failure in the poultry meat sector in the form of negative externalities. The negative externalities of poor treatment of farm animals relate to poor animal welfare and can possibly relate to risks for public health and the environment (see 2.5). It is likely that these externalities are not valued in the market resulting in the exploitation of farm animals (Carlsson, Frykblom & Lagerkvist, 2007). From an ethical point of view this type of negative externality should be valued (Claassen & Gerbrandy, 2016).

Secondly, one can possibly speak of a citizen-consumer gap relating to the ethical consumption of broiler meat. This citizen-consumer behavior gap needs to be understood in order to understand why the market is not providing better animal welfare (Animal Welfare Committee, 2011). To understand and research this concept in the Netherlands we must know the public opinion on animal welfare and know the factors that are likely to influence willingness to pay and consumer behavior.

Thirdly, if a market failure can be recognized as well as a citizen-consumer behavior gap, this provides a necessity for government intervention. It is thus important to know which policy measures could possibly be taken and are most effective. The next section will provide more information on policy measures as this is necessary for answering the research question, specifically the third sub-question.

3.2 Policy Measures

A government can choose to take the least interventionist market-based approach and leave the animal welfare standards beyond the minimum standards to the market. This only works if the consumers are willing to pay for animal welfare (McInerney, 2004). However, as became clear from the previous paragraph, the market is failing to provide farm animal welfare despite the existing notion that it needs to be improved. Here one could conclude that additional government action is necessary (Harvey & Hubbard, 2013). This section will discuss the policy measures that can be used in animal

welfare policies and an overview of these measures for animal welfare policies is presented in table 1 at the end of this section.

A more effective market-based approach can be realized through **farm assurance schemes** that have strictly enforced FAW standards. The supermarkets then specify the characteristics of the product that must be met by the farmers, inspect them, specify them, and make them a special feature (Main, Webster & Green, 2001). This can create a positive influence on the production standards down the whole supply chain. Furthermore, producers can cooperate to meet the standards and capture a more secure market share and premium prices. Widening farm assurance schemes can upgrade the expectations of the consumers as well as the standards of the farmers (McInerney, 2004). A policy requirement for livestock farmers to join assurance arrangements can strengthen this trend. The downside to this policy measure is that there are no obvious sanctions for not participating and that the supermarkets cannot be expected to impose uniform standards across the sector (McInerney, 2004; Main, Webster & Green, 2001).

Another market-based approach to improve animal welfare can be realized through **education and information programs**. The government can assure that certain animal welfare standards are valued and accepted. To influence willingness to pay and encourage demand you must change the attitudes towards the product as it is expected that only a few within society have experience or knowledge of livestock farming (Ingenbleek, Immink, Spoolder, Bokma & Keeling, 2012). Thus, if the objectives of a policy are based on certain animal welfare beliefs it is in their best interest to implement a program of education and awareness about the role of farm animals within society and the role of humans in creating FAW (McInerney, 2004).

When consumers are informed on farm animal welfare and they believe that they play a role in the level of FAW as a result of education and information programs, then adding **consumer subsidies** for products with a high level of FAW to this approach can be very effective. This would make these products cheaper for the consumers and helps them change their habits and consumer preferences in favor of FAW friendly products (McInerney, 2004; Ingenbleek, Immink, Spoolder, Bokma & Keeling, 2012).

An approach based on spreading knowledge and changing consumer preferences also needs to be supported by **labeling** so the consumers are able to change their consumer behavior according to their growing awareness (McInerney, 2004). If animal products are not labeled, consumers are not able to verify the level of animal welfare. Since the private sector is not always able to label their products sector-wide and in a transparent way, public intervention is necessary. The EU did not create a public label, but single MS are making progress in establishing national labels for animal welfare. In the Netherlands, the private sector Beter Leven label is rather well-known and widespread at the retail

level (Grethe, 2017). Section 3.3 will provide more information on the use of quality labels in the Netherlands.

To invigorate the approach, it is important that the government acts as an example and thus a **demonstration** of what kind of consumer behavior is optimal. This means that the public sector must take animal welfare considerations into account for its purchases as well. In practice this means that food products in for example hospitals and prisons must meet high FAW standards. This gives the approach credibility and proves that the added value to society is worth the costs (McInerney, 2004).

Instead of a market-based approach, measures can also be directed at the livestock farmers specifically. The main governance instrument used in the EU is regulation complemented by enforcement and capacity building (Grethe, 2017; Carlsson, Frykblom & Lagerkvist, 2007; Ingenbleek, Immink, Spoolder, Bokma & Keeling, 2012) but there are also instruments the government can use to create economic penalties or incentives for livestock farmers. The most obvious of these governance instruments is the use of **subsidies and taxes** (Salzman, 2013). While increased animal welfare can be seen by a government as benefiting society as a whole, it would be seen by the livestock producers as a drawback as they are the ones carrying the costs firstly. Providing the livestock farmers with subsidies that compensate for these extra costs solves the financial issue. On the other hand, the government can choose to do the obverse and impose taxes on the producers that fail to deliver certain FAW standards. Subsidies are, however, a preferred governance instrument because taxing has too much of an impact on the livestock farmers when it comes to trade (McInerney, 2004). Taxes can put a European country at a disadvantage compared to other countries that have lower domestic FAW standards.

Another way to develop farmers' incentive to improve FAW can be realized through a **cross-compliance** framework which is basically a combination of taxing and subsidizing. This would mean that they need to comply with the requirement of higher FAW in order to receive a certain element of benefit from the government (McInerney, 2004; Ingenbleek, Immink, Spoolder, Bokma & Keling, 2012).

Which one of the policy measures discussed in this chapter is the most effective differs per country. If the problem of poor FAW is caused by a lack of knowledge, for example, then labelling and education programs might be effective in itself. However, if consumers are informed sufficiently but are still not willing to pay for animal welfare, the use of farmer-based measures or consumer subsidies could be more effective.

Table 1: Policy measures for animal welfare policies

Approach	Instruments
Government-based	Legislation Enforcement capacity building
Market-based	Farm assurance schemes Labelling Information and education programmes Demonstration Consumer subsidies
Farmer-based	Welfare taxes/subsidies Cross-compliance

Source: Ingenbleek, Immink, Spoolder, Bokma & Keeling (2012)

3.3 Quality Labels

As mentioned before, the only way for consumers to know the level of animal welfare of the meat product options in the supermarket are through quality labels that indicate the level of animal welfare, thus it is important for this research to know which ones are used in the Netherlands. The Netherlands has a number of quality labels that give consumers the opportunity to analyze the level of animal welfare and environmental friendliness of the meat products in stores. In the Netherlands there are 14 widely used quality labels that indicate animal welfare of meat products (Voedingscentrum, 2019). The most well-known quality labels for meat are (Dierenwelzijnscheck, 2019; Wakker Dier a, 2020; Voedingscentrum, 2019):

- **The Beter Leven label**: This is a private sector label and is the most well-known and widespread label at the retail level. It was created by the Dutch animal protection services. There are three types of Beter Leven labels: 1 star, 2 stars and 3 stars and can be found on dairy- and meat products. The more stars the product has the higher the level of animal welfare.
- **The EU label for organic meat**: Organically produced meat can be recognized by the EU label for organic meat but can also be recognized by the Beter Leven label with 3 stars. This label is EU wide thus has the same requirements in all member states, but each MS must choose its own organization to enforce the rules. The label also focusses on environmental aspects.
- **The EKO label for organic meat:** When a meat product has the EKO label it means that the company that produced it is an EKO company. This entails that the company works on at least 2 out of 12 themes (such as animal welfare, climate, biodiversity, and climate). They are only certified if they achieve their specific goals within the themes.
- **Free range meat and PROduCERT:** Meat labeled as free range or PROduCERT have a level of animal welfare between standard and organic meat. There are no official rules on when a product is

allowed to be labeled as free range. This is why the label PROduCERT was created. This label is used by butchers to prove that the meat is actually free range.

According to Dutch animal welfare organization Wakker Dier, the above mentioned labels are the only ones that are trustworthy together with the label 'Demeter' that indicates a higher level of animal welfare than organic products but is only used in nature shops (Wakker Dier a, 2020).

3.4 Chicken Meat Concepts in Dutch Supermarkets

The Netherlands has a relatively high level of consumption of chicken meat. In the year 2019 Dutch citizens consumed on average approximately 20kg of chicken meat per person of which 90 percent has been purchased in a supermarket (Nepluvi a, n.d.). The most popular chicken meat product in the Netherlands is the chicken breast which is accountable for about 60 percent of the revenue of pre-packed chicken (Nepluvi a, n.d.). Other parts of the chicken are thus sold abroad (Zootecnica International, 2017).

The Dutch poultry meat sector produces many different concepts for chicken meat ranging from standard chicken to organic (Voedingscentrum, 2019; Klein Swormink, 2017). Supermarkets have their own minimum standards concerning the animal welfare of the broiler meat they sell. These are compared to the Beter Leven 1 star concept in table 2. It becomes clear from this comparison that many supermarkets still have rather low animal welfare standards, assuming that the minimum standards of the Beter Leven 1 star concept are required for a sufficient level of FAW welfare as Dutch animal welfare organization Wakker Dier redeems necessary (Klein Swormink, 2017).

Nowadays, the Chicken of Tomorrow as discussed in chapter 2 is available in almost every supermarket making it the new standard and which means that it has higher FAW standards than legally required but only limited (Klein Swormink, 2017). Still, many supermarkets that have their own chicken meat concepts such as portrayed in table 2 claim that they care about broilers' welfare even though their broiler welfare standards are low compared to other supermarkets (Wakker Dier b, 2020). To illustrate this supermarkets Albert Heijn, Deen and Plus are looked at as an example because they have the lowest level of broiler welfare standards of all supermarkets tested by Wakker Dier.

Albert Heijn offers their own ''AH chicken'' which they claim is a lustier breed with more space (Albert Heijn, n.d.). The DEEN supermarket offers the typical Chicken of Tomorrow with their packaging saying they use a slow growing breed and Plus supermarket offers their own 'New PLUS Chicken' but their packaging does not provide any specifications on what this entails (DEEN, n.d.; PLUS, n.d.). To find out what the actual level of animal welfare of their chicken meat is one must visit the supermarkets' websites as they give almost no information on the packaging itself. It is thus possible the supermarkets are using the fact that their chicken welfare standards go further than the legal standards as a way of

improving the image of their chicken. However, as becomes clear from comparing their minimum standards to other supermarkets' minimum standards, they do not even come close to the Beter Leven 1 star concept and score worse than most other supermarkets' concepts regarding broiler welfare (see table 2).

The supply of more FAW friendly chicken meat does exist in the supermarkets as well such as organic or Beter Leven 3 stars. However, this varies across supermarkets as well and according to Dutch newspaper AD (2019, October 10th), the Aldi and Lidl do not even offer any chicken meat products with quality labels indicating their welfare and Albert Heijn for example only offers 8 percent of its chicken meat with a quality label.

Thus, there are a couple of conclusions that can be made. Firstly, supermarkets are likely manipulating consumers to make them believe the chicken they offer in their shops always meet broiler welfare standards sufficiently, which could potentially influence consumers to choose the cheapest option. Secondly, the limited supply in organic, Beter Leven and free-range chicken meat products could be a result of the limited demand for these types of products. Thirdly, when consumer only purchase groceries in for example Aldi or Lidl, they are not able to choose an animal friendly chicken meat product unless they are willing to go to another location. This could potentially be a barrier for them to consume ethically. More information on possible factors influencing consumer behavior and WTP will be discussed in section 3.7.

Table 2: The minimum standards of supermarkets in the Netherlands compared to the Beter Leven 1 star concept

Supermarket	**Growth per day**	**Chickens per m2**	**Daylight in the barn**
Albert Heijn, DEEN, PLUS	Max 50 grams	16 chickens (38kg/m2)	No
Coop, Dekamarkt, Dirk, Hoogvliet, Jan Linders, Poiesz,Spar, Vomar	Max 50 grams	16 chickens (38kg/m2)	Yes
Boni	Max 50 grams	15 chickens (37kg/m2)	Yes
Lidl	Max 50 grams	15 chickens (35kg/m2)	Yes
Aldi	Max 47 grams	15 chickens (35kg/m2)	Yes
Jumbo, Boon's Markt, MCD, Nettorama	Max 45 grams	13 chickens (30kg/m2)	Yes
Beter Leven 1 star	Max 45 grams	12 chickens (25kg/m2)	Yes + covered spout

Source: Wakker Dier b (2020)

3.5 Public Opinion on Animal Welfare

What is the public opinion in the EU, and more specifically, in the Netherlands on farm animal welfare? In order to form expectations on the support for animal welfare under Dutch consumers it is important to find the answer to this question. The latest Eurobarometer research on Europeans' attitudes towards animal welfare was conducted in 2015 and showed some interesting results. In general, 94 percent of EU citizens believed that it is important to protect the welfare of farmed animals and out of all EU countries, the Netherlands showed the greatest support for the mention 'animal welfare refers to the duty to respect all animals' (70 percent) (European Union, 2015). Only 10 percent of respondents in the Netherlands agreed that the best description of animal welfare is that it 'contributes to better quality animal products', but a low percentage (31 percent) of respondents in the Netherlands believed that FAW should be better protected (European Union, 2015). A possible explanation is that Dutch citizens believed that their national laws were already giving a high level of protection to farm animals. This could also explain why respondents in the Netherlands showed the lowest support (although still a whopping 45 percent) for the question whether they would like to have more information on the conditions under which farm animals are treated, while most EU citizens (64 percent on average) answered that they would like more information (European Union, 2015).

When it comes to their consumer behavior, Dutch citizens seem more likely to pay for animal friendly products (85 percent) and look for animal welfare-friendly identifying labels on products that they purchase (73 percent) (European Union, 2015). Most respondents from the Netherlands (55 percent) found that there is sufficient choice of animal welfare-friendly food products (European Union, 2015). When it comes to questions about consumer choice and willingness to pay, it is important to realize that there is most likely a hypothetical bias influencing people's answer (Van Loo, Caputo, Nayga, Meullenet & Ricke, 2011). This means that people tend to make hypothetical buying decisions that differ from their decisions in a real buying situation. There are different methods to minimize this hypothetical bias with the most effective being the method of a cheap talk script providing the respondent with more information informing them on the existence of hypothetical bias (Van Loo, Caputo, Nayga, Meullenet & Ricke, 2011). When looking at the survey that was used to develop the Eurobarometer report, no method to minimize hypothetical bias has been applied. Furthermore, the possibility of hypothetical bias has not even been acknowledged in the Eurobarometer report. Thus, it is important to realize that the results of the questions related to consumer choice are likely to not be completely in conformity with reality. Thus, up-to-date research on public opinion on animal welfare is very limited which means the latest results from 2015 will be used to formulate expectations in chapter 4.

3.6 The Citizen-consumer Gap

Many scholars have found that people behave differently as citizens than as consumers and that just because someone is concerned about animal welfare this does not necessarily mean they consume more animal friendly products (Harvey & Hubbard, 2013). In this document this phenomenon is referred to as the citizen-consumer gap. Ethical (or sustainable) consumption is based on decision-making that takes both the consumer's social responsibility and individual needs into account (Meulenberg, 2003). For any product on the market it is important that it is accepted by the consumers in order for it to be successful. More and more people are now consciously purchasing more animal friendly products, but everyday consumption is resistant to change and is also driven by habit, convenience, and social norms (Vermeir & Verbeke, 2004). Research has concluded that consumer decisions about food are most often selfishly based on price, appearance, convenience, health concerns and taste instead of being driven by animal welfare concerns. It also seems that consumers generally do not link the food they consume to where it comes from. In addition, most people do not think about the impact that their consumer choice has on anything but themselves (Vermeir & Verbeke, 2004).

The number of people that are worried about animal welfare is increasing and they seem to be more willing to take positive action (eat less meat or buy organic chicken) but not as willing to take negative action such as boycotting certain products (Vermeir & Verbeke, 2004). Typically, pressure for improved animal welfare standards and other government action comes from people as citizens, rather than from people as consumers. However, in the European Union there are not many options for citizens to vote directly for better animal welfare so pressure for government action comes from surveys on public attitudes (Vermeir & Verbeke, 2004). These surveys, however, are criticized for not taking into account framing bias, meaning that people tend to agree with statements that reflect social norms, and hypothetical bias as discussed before. It is also said that they contain scaling bias and lack of assessment of salience when respondents are questioned on importance. Overall, however, it can be concluded that people as citizens claim to support animal welfare and think that more should be done to improve it (Bennett & Blaney, 2002). Unfortunately, people as consumers might not be willing to purchase products that result in actual improvements and thus their consumer behavior is not in conformity with their attitudes (Harvey & Hubbard, 2013). When this is the case, one can speak of the existence of a citizen-consumer gap.

3.7 Willingness to Pay

In this research the first aim is to find out if there is a citizen-consumer gap in the Netherlands. Besides looking at public opinion this means we must look at existing literature on the willingness to pay of

consumers as well. Willingness to pay says something about what consumers value: the higher their WTP for a product the more they value it. Factors influencing WTP are thus also likely to influence consumer behavior. Much of the existing research on consumers' WTP for animal welfare uses surveys and choice experiments. Scholars often also choose to provide the respondents with some information on the chicken production industry that is important to know before answering the questions, to reduce information asymmetry (Mulder & Zomer, 2017). Much research, such as that of the ACM, tries to find a monetary value for WTP (ACM, 2015). Most research also tries to find out which factors influence WTP for FAW or other ethical products which is discussed below.

Most research on WTP for animal welfare claims that socio-demographic factors play a big role in the level of WTP. Women seem to value animal welfare more than men and the older the consumer the less WTP for FAW (Kendall, Lobao & Sharp, 2006; Lagerkvist & Hess, 2011). It is also perceived that people in larger households have a lower WTP, because the investments go to the children instead of to animal-friendly products (Vanhonacker, Verbeke, Van Poucke, & Tuyttens, 2007). Many authors have found that people with higher education levels are more likely to be willing to pay for animal welfare (Kendall, Lobao & Sharp, 2006; Mulder & Zomer, 2017). Generally, it is perceived that a higher household income also increases WTP. (Deemer & Lobao, 2011). However, there are also many authors that claim that demographic factors are actually poor predictors of WTP, and many contradictions can be found between studies (Bray, Johns & Kilburn, 2010).

Ethical consumption is a very complex phenomenon. The strength of people's beliefs, confidence, moral maturity, and feelings of being in control are all underlying moral and emotional factors that influence WTP for ethical products. Besides the socio-demographic and emotional factors there are the situational factors (Bray, Johns & Kilburn, 2010). Now, unfortunately, research on these factors is limited. What we do know is that limited availability of ethical products, the bombardment of consumers with information, the passivity of consumers in their purchasing choices, and consumer skepticism of labels are situational factors that influence WTP (Nicholls & Lee, 2006; Boulstridge & Carrigan, 2000). Consumers generally seem unwilling to make ethical purchases when they have to pay more, make special effort, or lose product quality (Carrigan & Attalla, 2001).

3.8 Dutch Consumers' WTP for Broiler Welfare

This section discusses the information that exists on the WTP for broiler welfare of Dutch consumers specifically since this is the target group for the research. What is known from the research of the ACM (2015) is that Dutch consumers do not believe that the free market will provide more animal welfare by itself and thus rather sees government intervention. They also find the incomplete sedation of animals during slaughter the most unacceptable aspect of animal treatment, while the Chicken of

Tomorrow concept only focusses on housing aspects (Leenheer, 2015). Information asymmetry is also recognized as a reason for Dutch consumers not to choose animal friendly chicken meat. It is unclear to most consumers what different chicken concepts entail. Furthermore, consumers mostly look at the price to determine which product they buy and there are many sales on chicken meat which make this focus on price even greater (Leenheer, 2015).

There is not much research on Dutch consumers' WTP for broiler welfare but the research by Mulder and Zomer (2017) gives some insights. Both the ACM and Mulder and Zomer (2017) found that consumers are willing to pay around 6 euros for 500 grams of chicken meat with higher animal welfare standards, which is approximately 150 percent of the price of regular chicken. Consumers seem to value outdoor access and anesthesia methods the most. So, Dutch consumers are willing to pay for more animal friendly produced chicken meat, while this is not translated onto the market. Many authors believe that a lack of trust in labels as well as information asymmetry are the most important barriers for the success of ethical products (Jahn, Schramm & Spiller, 2005; Mulder & Zomer, 2017). Consumer cannot evaluate what the level of animal welfare of a product is and thus have to understand and trust quality labels (Verbeke, 2009). Furthermore, even when the information is there, consumers may still choose to stay ignorant according to the rationality-ignorant consumer hypothesis (McCluskey & Swinnen, 2004), because it takes too much effort to process the information (Verbeke, 2009).

3.9 Factors Influencing Consumer Behavior

A widely known factor that influences consumer behavior is the access to reliable and understandable information. As mentioned before not many consumers are informed on the FAW attributes of products making it difficult for them to make informed consumer choices (Vermeir & Verbeke, 2006). Limited knowledge of the poultry meat sector and the consequences of consumer choice in the food supply chain can also impact which product consumers decide to purchase (Verbeke, 2005). Confusion about the information that is provided to them can result in consumers looking at social information thus looking at the behavior of other people. As discussed in section 3.3, food labelling is important in providing information, but consumers' perception and knowledge of these labels can often be different from the actual meaning behind these labels (Verbeke & Ward, 2006).

The availability of FAW friendly products is also a determinant for consumer behavior (Vermeir & Verbeke, 2006). If the motivation of a person to purchase, for example, organic chicken is high it can still be very difficult to act on this motivation when there is low availability. It is often the case that ethical products have limited availability as is the case in many Dutch supermarkets as well (see section 3.4). Going to another location for FAW friendly chicken meat can be an inconvenience and, as

mentioned before, consumers are less willing to pay for better FAW when special effort is needed (Carrigan & Attalla, 2001).

Another aspect that determines consumer behavior is the perceived consumer effectiveness (PCE). This is the extent to which the person believes that their consumer behavior can contribute to solving an issue. Consumers must believe that their choices can have a positive influence on the level of FAW for them to translate their beliefs into action (Roberts, 1996).

3.10 Conceptual Model

As discussed in chapter 1, the main research question and corresponding sub questions for this study are as follows:

Does a citizen-consumer gap exist regarding broiler welfare in the Netherlands, how can it be explained, and what does this mean for animal welfare policies?

Sub question 1: *Is there a citizen-consumer gap regarding broiler welfare in the Netherlands?*

Sub question 2: *How can this be explained?*

Sub question 3: *What does this mean for animal welfare policies?*

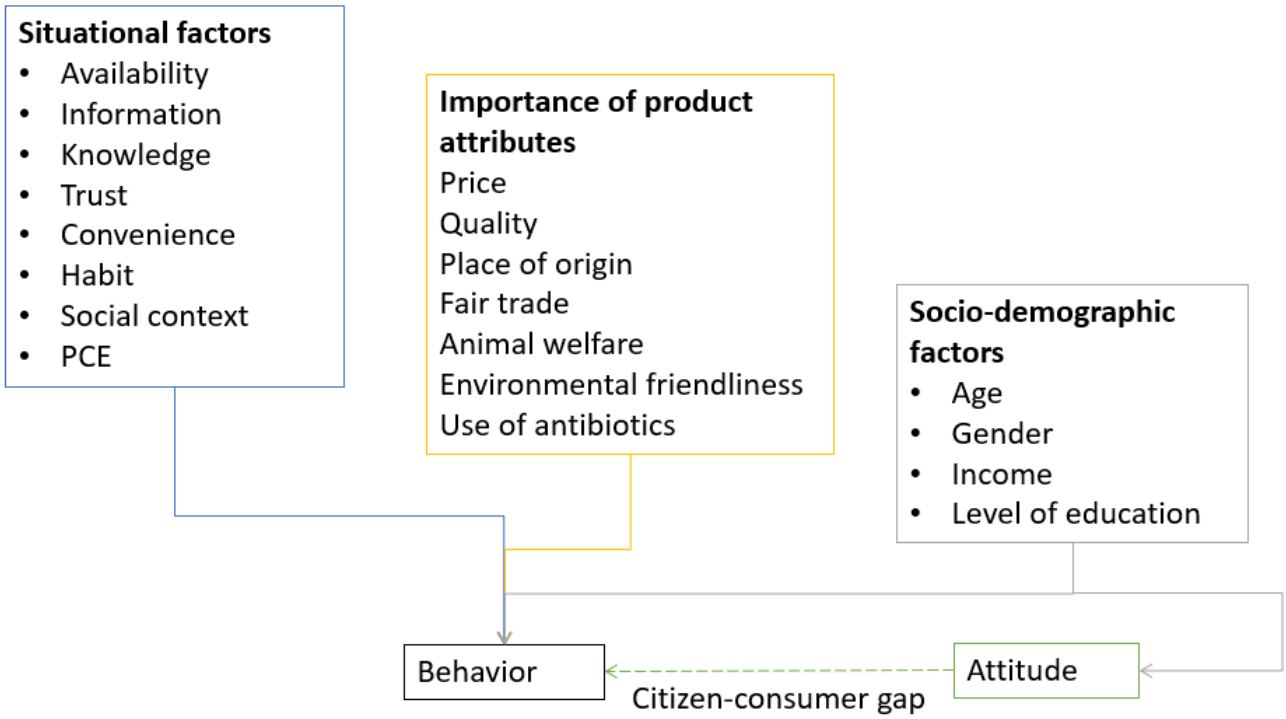
What is know from the theoretical framework is that we can argue for the existence of a market failure in the form of negative externalities such as poor farm animal and that it is likely that a citizen-consumer gap exists in the Netherlands (Carlsson, Frykblom & Lagerkvist, 2007; Animal Welfare Committee, 2011). Many policy measures are possible for improving animal welfare policies (McInerney, 2004), but in order to decide which policy instruments are likely to be most effective, the citizen-consumer gap needs to be understood first.

Many different factors determine consumer behavior and the conceptual model below is a result of all relevant and available theory discussed in this chapter and will help to answer sub question 1 and 2 and thus also sub question 3 and the main research question. The different factors influencing consumer behavior have been divided into 3 categories: situational factors, products attributes and socio-demographic factors. The latter category will not be researched as it is not clear from the literature whether the socio-demographic factors influence consumer behavior, but they will be used to determine whether the sample group is representative for the population.

The situational factors and attributes of the product are expected to influence consumer behavior and attitudes on FAW will most likely show little or no correlation with consumer behavior, thus having

less influence than the situational factors and the product attributes. The exact hypotheses will be explained in chapter 4.

Figure 2: Conceptual model



Chapter 4: Research design

To be able to gather all the information needed to answer the research question, data will be collected through quantitative research with a survey as the research tool. This type of research method is most fit for this research, because it makes it possible to collect a lot of information in a short period of time from a large group of people (Blackstone, 2012). Survey research is also the best way to generalize characteristics, attitudes, and trends of a certain group. One of the downsides to using a survey in this specific research is the fact that when respondents are asked about their behavior, they might answer according to social norms, and not according to how they behave in reality. This means that a lot of extra attention must be paid to these types of questions (Blackstone, 2012). This chapter discusses the research design which includes information on the data collection, the data analysis, the research area, and the expected findings.

4.1 Data Collection and Analysis

As mentioned before, the data will be collected by using an online survey. The questions in the survey will all be close ended. Since our research group is rather large (13,95 million adults live in the Netherlands) the aim is to gather data from at least 329 (confidence level of 90 percent) persons and preferable 516 (confidence level of 99 percent) persons or more to make the analysis as reliable as possible (CBS a, 2019). The sample size is calculated as follows: (Z-score)2 * Standard Deviation*(1-StandardDeviation) / (margin of error)2 with the margin of error used here being 5 percent (Qualtrics, 2020). It is important to mention, however, that the population size is probably smaller, because not all adult that live in the Netherlands are consumers of chicken meat products. The exact population size is thus unknown but expected to be large.

Since the preferred number of respondents is rather high (663 or more) a high response rate is key for which persons need to feel an incentive, for example because they think they can improve a product. On the other hand, lower educated or less affluent people may feel inclined to give socially accepted answers which creates a bias in the results (Blackstone, 2012). Thus, respondents are simply told that the purpose of the survey is to collect data for this thesis. To increase responses, the privacy implications and time commitment will be mentioned as well.

The survey will be conducted online and will be spread via the internet for several reasons. Firstly, the internet provides many different channels for gathering data, such as e-mail and social media websites. Furthermore, it is cost effective, easy, quick, data is captured immediately, and overcomes geographical limitations (Blackstone, 2012). Thus, the participants are selected based on their willingness to take part in the research. Furthermore, the sample must be representative of sex, age,

income level and education level (see 3.2). The chosen sampling method also comes with the risk of volunteer bias because it is possible that the people that volunteer to participate are different than those that decide not to volunteer (PHAST, 2020).

When using online surveys to collect data one needs to be aware that certain errors can occur. The researcher is not able to explain the questions to the respondent, which is why there will be several test runs and a lot of attention has to be paid to the survey design. Even with considering the representativity of the sample group, sample error is possible. Some people will simply not be interested in taking part in the survey. Elderly could be harder to reach, and certain members of society will be harder to find through the internet. Therefore, not only social online networks will be used but also the contacts of the Wiardi Beckman Stichting (Dutch think tank). This will help to reach all different members of society to realize a high level of representativity. After the data collection the data will be collected in one Excel sheet and be transferred into the data analysis software SPSS.

4.2 The Research Area

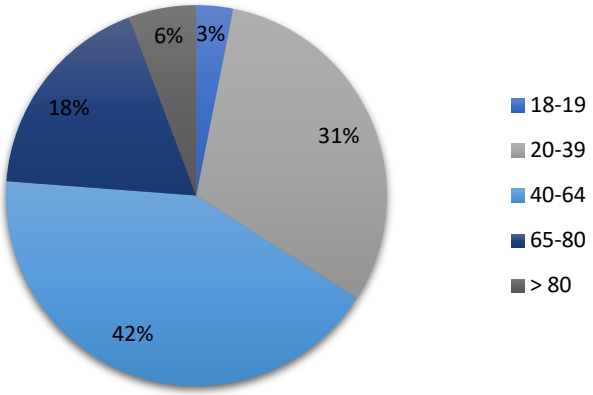
The research is to be conducted among residents of the Netherlands that are at least 18 years old and purchase chicken meat for their household regularly. This means that the survey language will be Dutch which will automatically exclude non-Dutch people and assures that the respondents understand the questions. A control question will be used to make sure that participants that do not purchase chicken meat for their household regularly will be excluded. The Netherlands was chosen as the research area because it is the country where the Chicken of Tomorrow concept was established, and there are many different chicken meat concepts and labels available as was established in chapter 2 and 3. It is also a country with a population that is expected to have a more positive attitude towards the protection of broiler welfare than other EU countries (Eurobarometer, 2015).

It is important for any research that the sample represents the population, for the results and conclusions to be reliable. Therefore, this section provides the relevant information that is needed on the socio-demographic factors of the research area that, according to our theorical framework, should be considered. This data can be compared to the collected data through a Chi-square goodness-of-fit test to determine whether the respondents represent the Dutch consumers of chicken meat. The socio-demographic factors to be discussed here are age, income, and education level. Furthermore, there needs to be an equal amount of men and women among the respondents. The data has been collected using open data available through the CBS (Statistics Netherlands). The data are the most relevant and recent available. There is no existing data on the socio-demographics of Dutch chicken meat consumers specifically, but because only 5 percent of the Netherlands' population never eats meat (NVB, 2020) the data for the whole population should suffice.

Age

Figure 3 shows the data found on age groups in the Netherlands. The largest age group is the 40 to 64-year old people with 34 percent of the population followed by the 20 to 39-year old people with 25 percent. It is thus expected that the response group will mostly consist of middle age citizens and young adults. An important thing to take into account here, is that most people that are part of the youngest age group (under 20 years old) likely not purchase their own food which is why only data of respondents of 18 years old or older will be used.

Figure 3: Age groups in the Netherlands (in years) 2019

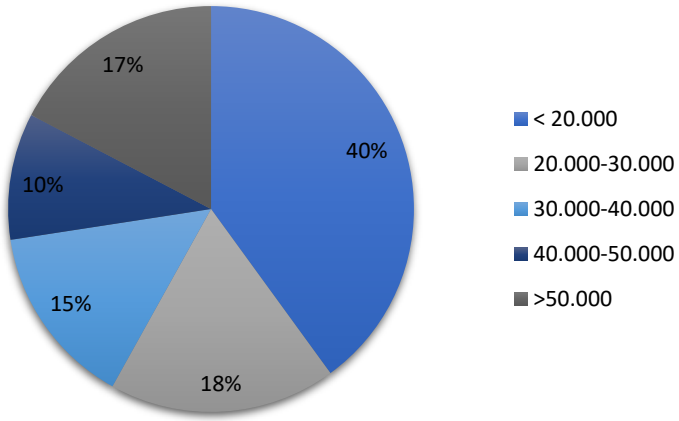


Sources: CBS a (2020); CBS b (2019)

Income

In the Netherlands the modal yearly income in 2018 was about 34.700 euro (Statista, 2019). Figure 4 below shows the most recent data available of the distribution of income levels in the Netherlands. This shows us that most Dutch citizens (40 percent) had a low income in 2018 with a yearly income of less than 20.000 euros. This income group is very important for this research because it is exptected that people with a low income have a higher chance of experiencing harm from chicken concepts such as the Chicken of Tomorrow. While 18 percent of the Dutch population had a below average income, 42 percent had an average, above average or high income. What defines low, medium or high income is presented in appendix 2.

Figure 4: Distribution of income levels in the Netherlands (yearly income in euros) 2018

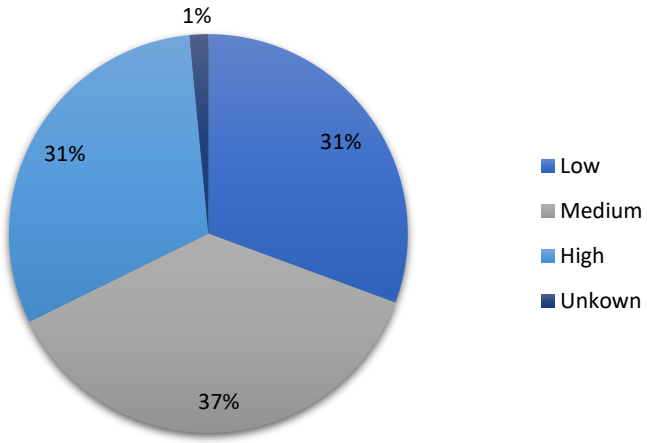


Source: CBS c (2019)

Education

To represent the Dutch population the group of respondents must also consist of people with different educational backgrounds. Figure 5 below shows the distribution of education levels in the Netherlands. As becomes clear, there are almost equally as many low, medium as highly educated people in the Netherlands with most people begin medium educated with 37 percent. What is considered to be low, medium or highly educated is defined in appendix 2.

Figure 5: Education levels in the Netherlands 2019



Source: CBS c (2020)

4.3 Expectations

Before creating the survey that will provide us with the answers to the sub questions and subsequently the main research question, expectations can be formed using the theoretical framework. The expectations are drawn up separately for each sub question. This section will provide the hypotheses and mentions the relevant theory in short. Hypotheses are established for sub question 1 and 2 only, since the third sub question will be answered based on the results from sub questions 1 and 2 and the relevant literature.

Sub question 1: Is there a citizen-consumer gap regarding broiler welfare in the Netherlands?

The first sub question aims to answer the question whether a citizen-consumer gap regarding broiler welfare can be recognized in the Netherlands. In the context of our research we can conclude that this citizen-consumer gap exists when broiler welfare concerns are expressed but not followed by corresponding actions. This means that firstly whether consumers in the Netherlands have a positive attitude towards the protection of broiler welfare must be established. According to the last Eurobarometer report on the topic, a vast majority (95 percent) of people in the Netherlands find the protection of the welfare of farmed animals important (European Union, 2015). Thus, it is expected that most Dutch consumes of chicken meat in the Netherlands find the protection of the welfare of broilers important.

Next, the consumer behavior of the consumers must be established. To do this, the survey includes a choice experiment where they have the option to choose between broiler meat products with different aspects: price, level of broiler welfare, and origin. When most respondents do not choose the option with the highest broiler welfare while also portraying that they value animal welfare, we can conclude that the level of broiler welfare is not the most important factor in determining consumer choice. The expectation is that this is the case and there will not be a strong correlation between attitude towards broiler welfare and consumer behavior because many supermarkets offer mostly boiler meat without quality labels (AD, 2019; Wakker Dier b, 2020). This means that the market is not providing broiler friendly chicken meat which means that the demand for this type of meat is still low in the Netherlands. Thus, the expectation is that most Dutch consumers of chicken meat would not choose a product with a high level of broiler welfare and that there is no strong correlation between the attitude towards broiler welfare and consumer behavior.

> ***H1:*** *There is no strong correlation between attitude towards broiler welfare and consumer behavior.*

Sub question 2: How can the citizen-consumer gap be explained?

The second sub question aims to answer the question of how a (or lack of) citizen-consumer gap regarding broiler welfare in the Netherlands can be explained. From the relevant scientific research on the topic, it is clear that there are a number of factors that could contribute to the existence of a citizen-consumer gap. Thus, for each of these factors mentioned in the literature its effect on consumer behavior must be researched. It comes to the following factors**:** knowledge, trust, social norms, perceived consumer effectiveness, habit, convenience, perception of availability of broiler friendly products and the importance of product attributes price, quality, place of origin, fair trade, animal welfare, environmental friendliness and use of antibiotics (Alphonce, Alfnes & Sharma, 2014; Bray, Johns & Kilburn, 2010; Carrigan & Attalla, 2001).

Vermeir and Verbeke (2006) claim that few consumers understand the real sustainable characteristics of the products they purchase. Consumer awareness of labels is generally low as well and if there is a lot of contradicting information people tend to use social norms to make consumer choices (Vermeir & Verbeke, 2006). Furthermore, consumers seem to know little about agriculture in general and the implications that their purchase decisions have on the food supply chain (Verbeke, 2005). Thus, it is expected that there is a lack of knowledge among Dutch consumers on broiler welfare and quality labels that indicate the level of FAW, and this results in less animal friendly consumer behavior. It is also expected that social norms will have a significant influence on consumer choice.

> ***H2:*** *Knowledge on the welfare of broilers in the Netherlands has a significant positive influence on broiler friendly consumer behavior.*
>
> ***H3:*** *A lack of knowledge on the meaning of labels indicating the level of animal welfare in the Netherlands has a significant negative influence on broiler friendly consumer behavior.*
>
> ***H4:*** *People whose social contacts show broiler friendly consumer behavior are more likely to show broiler friendly consumer behavior.*

Consumers are unable to evaluate the level of animal welfare personally, thus not only have to understand the meaning behind quality labels, but also have to put trust in them (Verbeke, 2009). However, according to the rationality-ignorant consumer hypothesis, even when the information is there, consumers may still choose to remain ignorant (McCluskey & Swinnen, 2004). This is because the effort it takes to process the information exceeds the expected benefits. Furthermore, information overload can result in indifference and misunderstandings (Verbeke, 2009). In the Netherlands, the private sector Beter Leven label is well-known and widespread at the retail level (Grethe, 2017), thus

respondents will be questioned on this label specifically as well as on the concepts of the supermarkets themselves. It is expected that most Dutch consumers of chicken meat have low trust in the Beter Leven labels, and the chicken meat concepts of the supermarkets.

> ***H5:*** *Low level of trust in the 'Beter Leven' quality label has a significant negative influence on broiler friendly consumer behavior.*

> ***H6****: Low level of trust in the chicken meat concepts of the supermarket has a significant negative influence on broiler friendly consumer behavior.*

According to the latest special Eurobarometer report on the subject, the highest proportion of respondents in the EU who did not believe the welfare of farmed animals should be better protected is observed in the Netherlands (31 percent) (European Union, 2015). Still, 66 percent of Dutch respondents did believe the welfare of farmed animals should be better protected in the Netherlands (European Union, 2015). These results could be a victim of theoretical bias, because agreeing to improvement in animal welfare is the most socially acceptable answer. Also, since we expect that most Dutch consumers will have insufficient knowledge on animal welfare in the Netherlands it is also likely that they think broiler welfare is already sufficiently protected.

> ***H7:*** *The thought that the national government is already taking sufficient care of broiler welfare in the Netherlands has a significant negative influence on broiler friendly consumer behavior.*

Supermarkets in the Netherlands all wield different minimum requirements for broiler welfare. Most supermarkets sell chicken that has only had a little more space than the standard chicken (Wakker Dier b, 2020). Big supermarket chains Lidl and Aldi do not even sell any chicken meat that has the Beter Leven quality label (AD, 2019). Thus, the lack of broiler friendly products could be an inconvenience for consumers, since for many of them it means they have to go to another location to purchase broiler friendly products. In the survey respondents will be asked which supermarket they use most to purchase groceries. This information can be used to explain whether they experience a limited availability of broiler friendly products and what their purchasing habits are since habit is also a factor that influences consumer behavior (Vermeir & Verbeke, 2004). It is expected that Dutch consumers of chicken meat believe there is a lack of broiler friendly products in their usual supermarket and that most of them also experience it as an inconvenience to have to go to another location for animal friendly chicken meat.

H8: *Availability has a significant positive influence on consumer behavior.*

H9: *Convenience has a significant positive influence on consumer behavior.*

H10: *Habit has a negative influence on broiler friendly consumer behavior.*

In order to motivate consumers to change their *behavior*, they must believe that consumer choice has an impact on the improvement of broiler welfare. This phenomenon is called the perceived consumer effectiveness (PCE) and the higher the PCE is the more likely consumers are to translate their attitudes into purchase (Vermeir & Verbeke, 2006).

H11: *The higher perceived consumer effectiveness the more broiler friendly consumer behavior.*

Lastly, the attributes of the chicken meat products can create a context in which consumers choose not to translate their attitude into purchase. Especially the importance of the price of the product is expected to have a significant negative effect on broiler friendly consumer behavior (Leenheer, 2015). The more broiler friendly a product the higher the price will be in most cases (Lusk, 2011).

H12: *The importance of the price of broiler meat products has a significant negative influence on broiler friendly consumer behavior.*

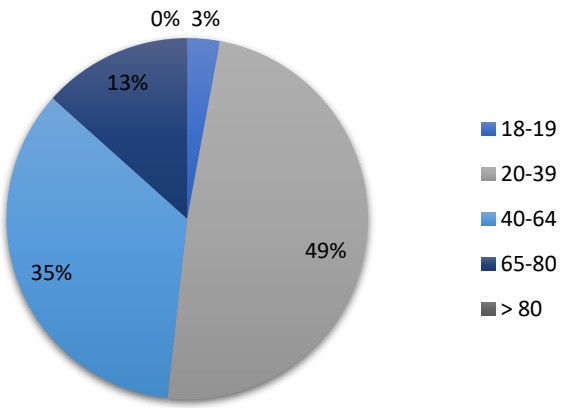
Chapter 5: The Sample

This chapter will provide the necessary information on the sample that is being analyzed on the basis of the hypotheses formulated in chapter 4. A total of 172 respondents are part of the sample group which means that the sample is not large enough for the population and the required sample size of 329. Because of the limited timeframe that the study was conducted in it was not possible to increase the sample size. Thus, it is possible that a disproportionate number of outliers and anomalies are included that skew the results and decreases the power of this study (Qualtrics, 2020). The sample will be used to make conclusions, but further research with a larger sample is necessary to get trustworthy results. The socio-demographics of the respondents will be presented in this chapter as well as representativity analyses of these characteristics. For the 4 variables 'age', 'income', 'education' and 'gender' there is an independence of observations, they are all categorial variables and the groups are mutually exclusive which means a goodness of fit test can be carried out.

5.1 Age

Figure 6 below presents the data on the size of the age groups in the sample. As one can see, the largest age group in the sample is the '20-39 year olds' (49 percent) followed by the '40-64 year olds' (35 percent) and the '65-80 year olds' (13 percent). Unfortunately, there are no respondents of the oldest age groups which is possibly caused by the fact that the survey was conducted through social media platforms which less people of the oldest generation use. The age group of 18-19 year olds is only 3 percent which is exactly the same as their frequency in the population (see 4.2).

Figure 6: Age groups in the sample



To find out whether the sample represents the population regarding their age we must conduct a representativity analysis. The age group '80 years and older' has been left out because there are no respondents within this age group in the sample. This also means that any conclusions that are made concerning the population only pertains to people between 18 and 80 years old. A Chi-Square goodness of fit test was conducted and shows that the division of age groups in the sample do not align with the population ($p \leq 0,05$).

Table 3: Outcome Chi-square goodness of fit test for 'age'

	Observed N	Expected N	Residual
18-19	5	5,2	-,2
20-39	84	56,7	27,3
40-64	60	77,5	-17,5
65-80	23	32,7	-9,7
Total	172		

Chi-square = 19,908, df = 3, Sig. = 0,000

There is an overrepresentation of the age group '20-39 years old' and an underrepresentation of the other age groups in the sample. This means that the cases will be weighted so the sample reflects the population better.

The following case weights will be assigned:

18-19: 5,2/5 = 1,04

20-39: 56,7/84 = 0,675

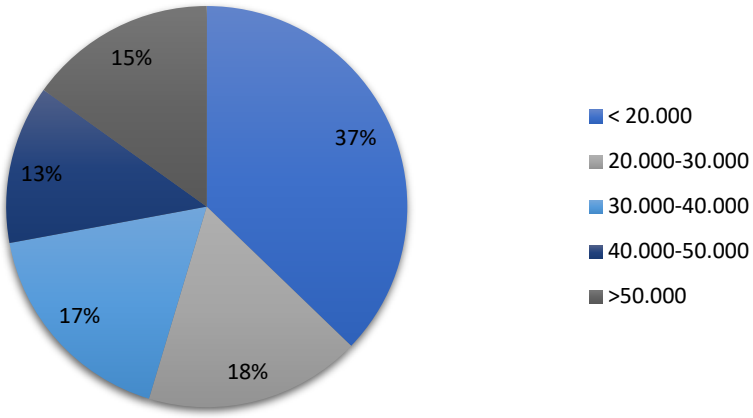
40-64: 77,5/60 = 1,292

65-80: 32,7/23 = 1,422

5.2 Income

The second socio-demographic factor that will be analyzed is the income level. Figure 7 below presents the data on the sizes of the income level groups in the sample. The largest income group in the sample is the 'below 20.000' group (37 percent) with the other income groups being of similar sizes to each other. This is close to what was expected looking at the distribution of income levels in the population (see 4.2).

Figure 7: Income levels in the sample



A Chi-Square goodness of fit test was conducted which shows that the distribution of income level groups in the sample align sufficiently with that of the population ($p > 0,05$). Thus, there is no need to weight cases based on income levels. The table below shows the exact results of the goodness of fit test for the variable 'income'.

Table 4: Outcome Chi-square goodness of fit test for 'income'

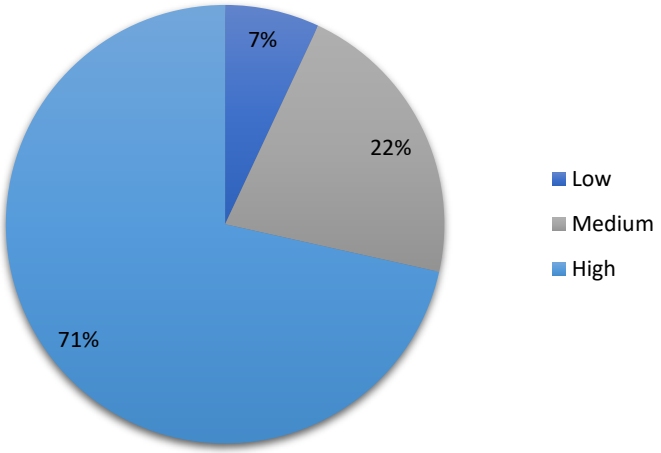
	Observed N	Expected N	Residual
< 20.000	64	68,8	-4,8
20.000-30.000	30	31,0	-1,0
30.000-40.000	30	25,8	4,2
40.000-50.000	22	17,2	4,8
> 50.000	26	29,2	-3,2
Total	172		

Chi-square = 2,747, df = 4, Sig. = 0,601

5.3 Education

Figure 8 below presents the distribution of income levels in the sample. The income levels low, medium, and high are supposed to be approximately equal to each other (see 4.2). However, the category 'high educated' is very large with 71 percent of the respondents being highly educated while only 22 percent is medium educated, and 7 percent low educated.

Figure 8: Education levels in the sample



According to the results of the Chi-Square goodness of fit test the distribution of education levels in the sample do not align sufficiently with that of the population ($p \leq 0,05$). The highly educated people are overrepresented while the low and medium educated people are underrepresented. This means that the cases will be weighted by educational levels.

Table 5: Outcome Chi-square goodness of fit test for 'education'

	Observed N	Expected N	Residual
low	12	53,3	-41,3
medium	37	65,4	-28,4
high	123	53,3	69,7
Total	172		

Chi-square = 135,386, df = 2, Sig. = 0,000

The following case weights will be assigned:

Low: 53,3/12 = 4,442

Medium: 65,4/37 = 1,768

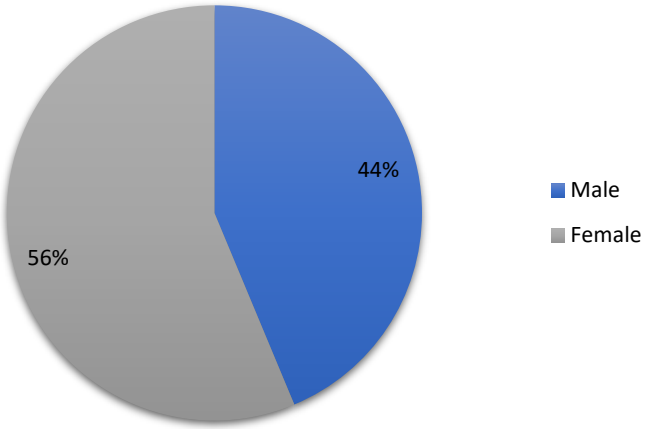
High: 53,3/123 = 0,433

5.4 Gender

For this research we simply wish for the number of males and females in the sample to be equal. In the figure below the number of males and females in the sample is presented. There are more females

(56 percent) than males (44 percent) in our sample and there are 3 respondents that were not willing to choose a gender or do not identify with either the male or female gender thus these have been left out of the representativity analysis.

Figure 9: Proportion of men and women in the sample



A Chi-Square goodness of fit test was conducted, and the results show that the sample is representative of the population regarding gender ($p > 0,05$). Thus, the cases will not be weighted based on gender. Table 6 below shows the exact results of the goodness of fit test.

Table 6: Outcome Chi-square goodness of fit test for 'gender'

	Observed N	Expected N	Residual
Male	73	83,5	-10,5
Female	94	83,5	10,5
Total	167		

Chi-square = 2,641, df = 1, Sig. = 0,104

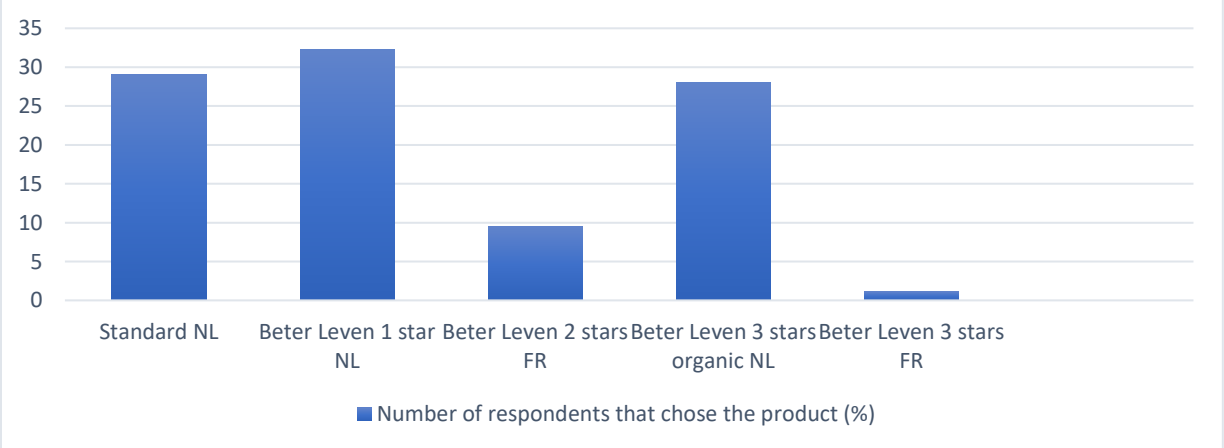
Chapter 6: Results

This chapter contains the findings deriving from the survey and the sample. As the sample does not have a sufficient size and there are no respondents of 80 years of age or older within the sample, the statements made in this chapter do not relate to the population but merely give an indication. Furthermore, as was mentioned in the previous chapter, the cases are weighted based on the socio-demographic factors 'education level' and 'age'. The respondents were obliged to fill in all questions before submitting their answers, thus making it impossible for them to skip any questions and creating an equal and high response rate across the survey. The hypotheses will be tested separately for the first two sub questions. Firstly, a statistical overview will be given of the results of the survey questions (for the exact survey questions see appendix 1).

6.1 Statistical Overview

Firstly, the survey started with a small choice experiment. Respondents could choose from 5 different chicken meat options that are very close to how they are presented as in actual Dutch supermarkets. They were made aware of the price, origin and quality label indicating animal welfare which is the same information they can obtain when purchasing these products at the supermarket. Since it is close to the situation in the supermarket, the higher the level of animal welfare, the higher the price. The choices of the respondents in this experiment are presented in figure 10 below. A majority (61,3 percent) of respondents chose one of the two products with the lowest level of animal welfare which are the standard chicken meat and the chicken meat with the Beter Leven 1 star quality label. However, 29,2 percent of respondents chose one of the products with the Beter Leven 3 stars quality labels which is more than expected.

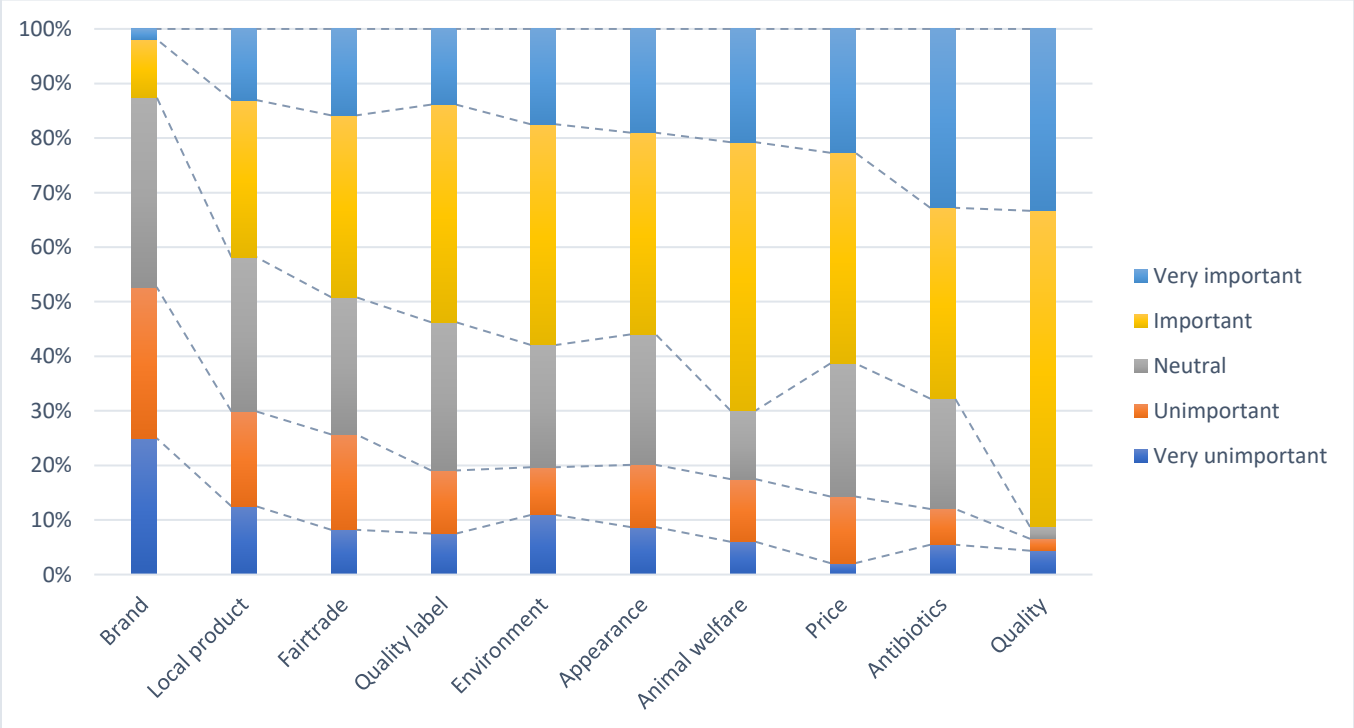
Figure 10: Outcome of the choice experiment



After the choice experiment respondents were questioned on the product attributes and to what extent they perceived the different attributes to be important (see appendix 1). The product attributes they were questioned on are: whether it is a local product, appearance, quality, brand, price, whether it has a quality label, the level of animal welfare, no use of antibiotics, whether it is environmentally friendly and whether it is a Fairtrade product. The findings on these product attributes are presented in figure 11 below from least important to most important based on the average Likert scores. The expectation was that 'price' would be the most important attribute since most respondents chose the two cheapest options in the choice experiment and because previous research suggests this as well. Interestingly, the quality of the products and the limited use of antibiotics are more important to the respondents and the price and level of animal welfare seem to be equally important.

This means that a question arises on how consumers know or guess the quality of the chicken meat they see in the supermarket and the amount of antibiotics that was used on the chicken. If consumers find these attributes to be of most importance, they should be able to have this type of information when purchasing chicken meat. Price is thus the most important attribute that consumers actually know without doubt.

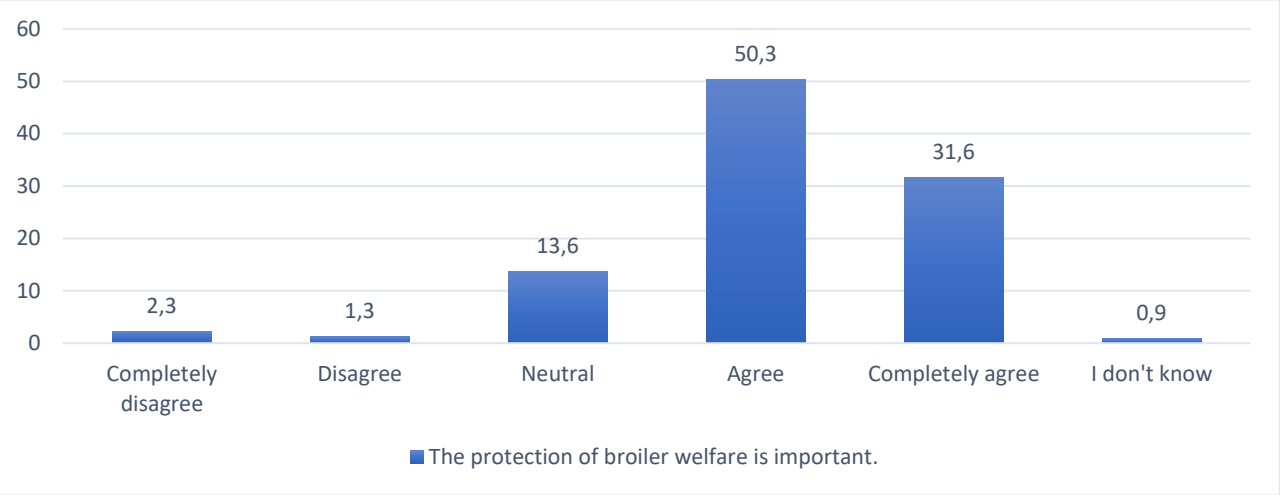
Figure 11: Responses to importance of product attributes (%)



For this study it is also important to know what the attitudes of the respondents are to the importance of broiler welfare. Thus, they were asked to what extent they agree with the following statement: 'The protection of broiler welfare is important.' The responses are presented in figure 12 below. A total of

81,9 percent of the respondents agree or completely agree with the statement. The average Likert score that goes with this variable is 1,1 on a scale ranging from -2 to 2, which indicates that the respondents mostly have a moderately strong positive attitude towards the importance of broiler welfare.

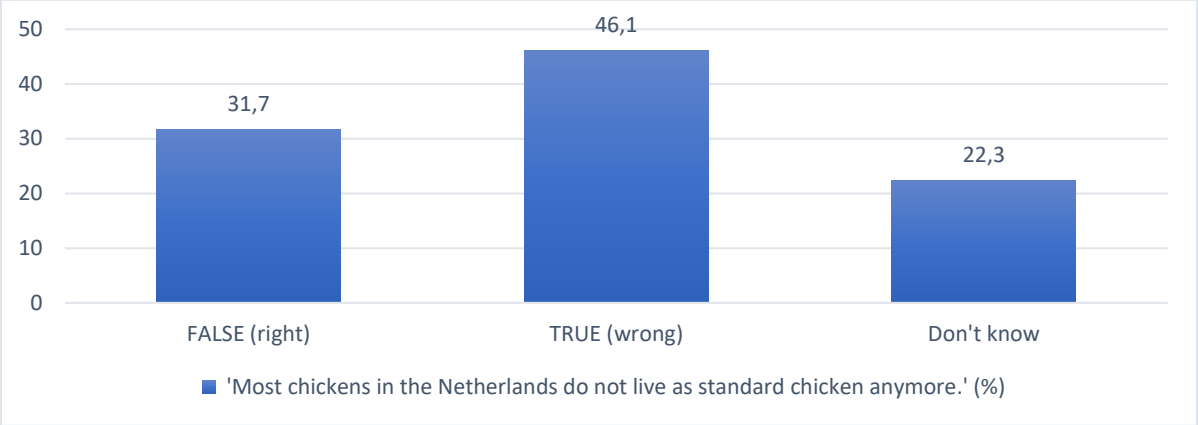
Figure 12: Responses to importance of broiler welfare (%)



Knowledge on the state of broiler welfare

To test the knowledge of the respondents on the state of broiler welfare in the Netherlands, they were asked whether they think a simple statement on broiler welfare in the Netherlands is true or not: 'Most chickens in the Netherlands do not live as standard chicken anymore.' The answer to this question is 'false' (Beijen, 2019). As presented in figure 13 below, most respondents answered wrong. In total only about 32 percent of respondents gave the right answer while about 68 percent answered wrong or did not know the answer. This gives an indication that many Dutch consumers of chicken meat have a lack of knowledge on the level of broiler welfare in their country. Since there is not much information easily available to question the respondents on it was not possible to ask more general questions on broiler welfare. We did ask respondents, however, if they think they have sufficient knowledge on the level of broiler welfare in the Netherlands. Only about 24 percent seems to think that they have sufficient knowledge, which means that 76 percent think they have either insufficient knowledge, are neutral about it or do not know.

Figure 13: Responses to general knowledge statement



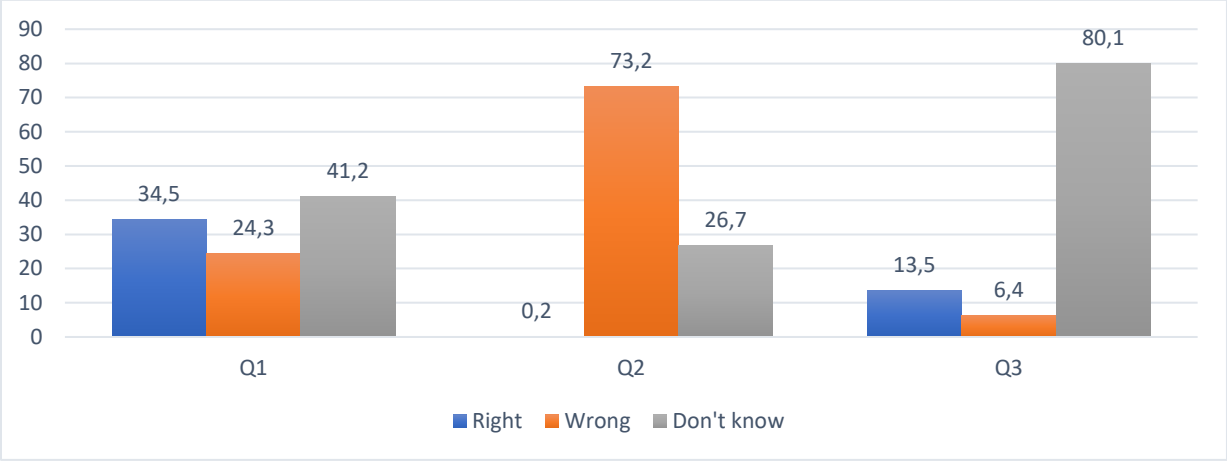
Quality Labels

To test the respondents' knowledge on the Beter Leven labels, 3 knowledge questions were asked first (see table 7 for the questions). Figure 14 below presents the number of right and wrong answers to these 3 questions. In response to the first question, a majority (65,6 percent) answered wrong or did not know. This number was even higher for the second question where no one knew the right answer and 73,2 percent answered wrong, giving the indication that Dutch consumers do not know which Beter Leven quality label indicates the least space for the chicken. The third question showed the most (80,1 percent) 'don't know' responses and only 13,5 percent answered this question right. This gives the indication that, overall, Dutch consumers do not have knowledge on the slaughter age connected to the different Beter Leven quality labels. Looking at the answers to these 3 knowledge questions it seems that Dutch consumers have limited knowledge on the exact meaning behind the Beter Leven quality labels.

Table 7: The 3 questions to test knowledge on Beter Leven labels

Q1	When chicken meat does not have the Beter Leven label, does this automatically mean the chicken didn't have a good life?
Q2	Which Beter Leven quality label goes with the least space for the chicken?
Q3	Does chicken meat with the Beter Leven quality label 1 star and 2 stars have the same slaughter age?

Figure 14: Knowledge on Beter Leven quality labels (%)

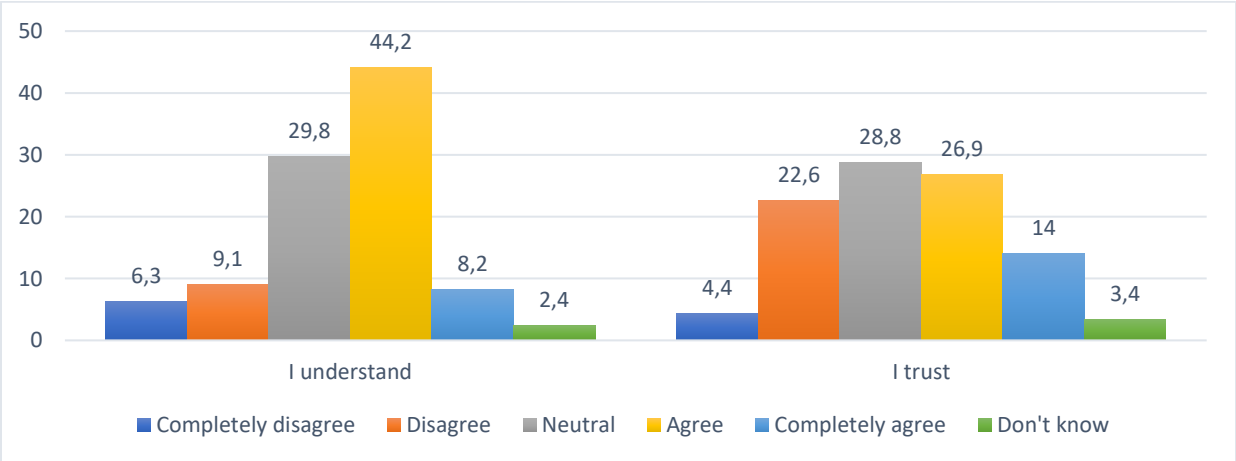


Respondents were also asked to indicate to what extent they agree with the following 2 statements: 'I understand what the Beter Leven quality label means.' and 'I do not trust the Beter Leven quality label.' The answers to these two statements are presented in figure 15 below. Since the second statement is negatively formulated the answers are turned around to represent the amount of trust.

It seems that a small majority of Dutch consumers claim to understand the Beter Leven quality labels (52,4 percent answered 'agree' of 'completely agree'). About 30 percent are neutral about their understanding of the Beter Leven quality labels and only 15,4 percent answered that they disagree or completely disagree with the statement meaning they claim not to understand the meaning behind the Beter Leven quality labels.

It seems like the minority of Dutch consumers (40,9 percent) claim to trust the Beter Leven quality labels while 27 percent claims to not trust them and 28,8 percent is neutral on the statement of trust. Thus, both the level of understanding and the level of trust in the Beter Leven quality labels are moderately low.

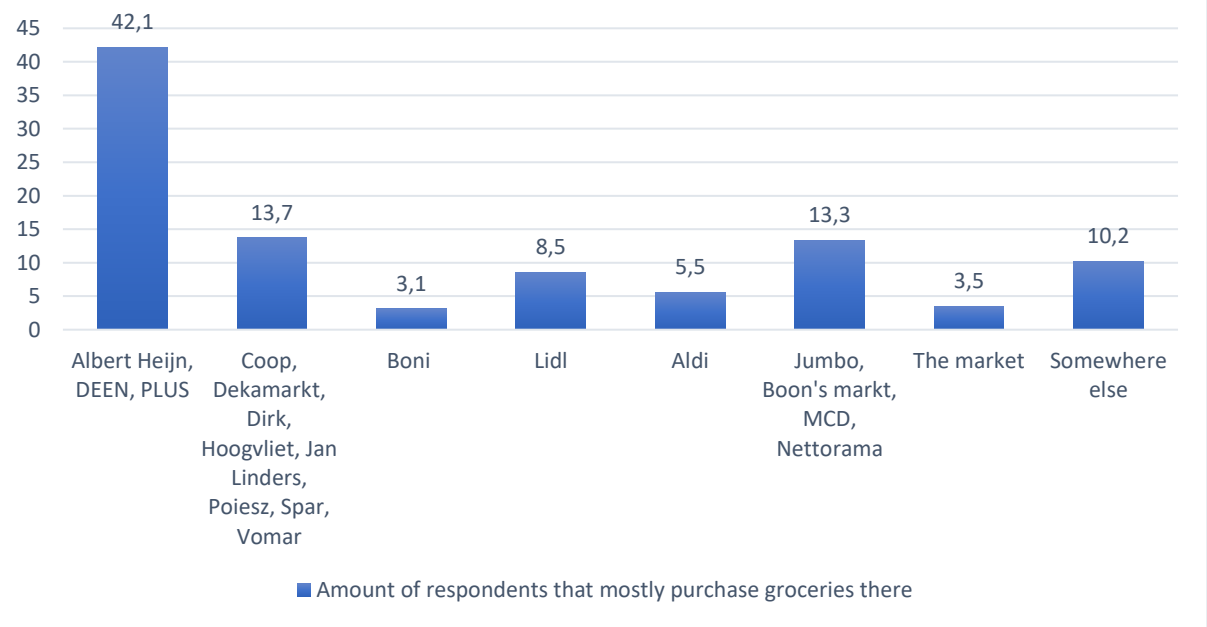
Figure 15: Trust and understanding of the Beter Leven quality labels (%)



Supermarkets' standard chicken

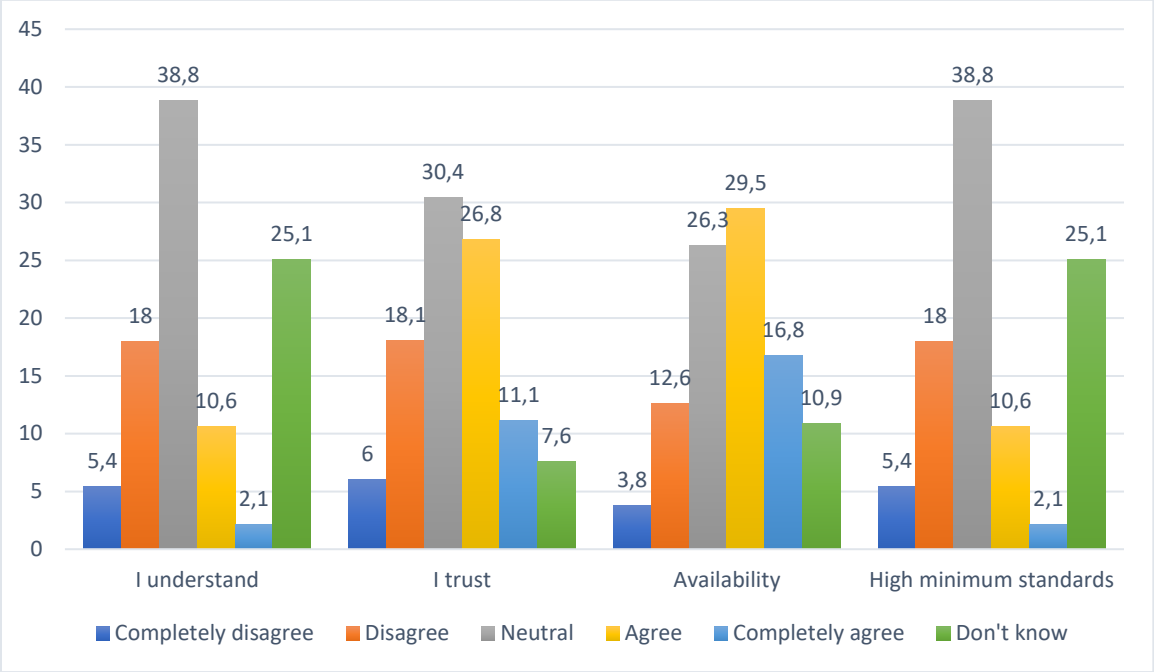
As discussed in the theoretical framework, supermarkets in the Netherlands have varying minimum standards for the welfare of the broiler meat they sell. Thus, respondents were asked which supermarket they use the most. The results are presented in figure 16 below. Many people (42 percent) mostly purchase groceries at Albert Heijn, DEEN or PLUS which are the supermarkets with the lowest minimum standards for FAW (see section 3.4).

Figure 16: Where the respondents mostly purchase groceries (%)



Thereafter, respondents were asked to indicate to what extent they agree with a number of statements on the supermarket. They were asked to what extent they think the supermarket has high minimum standards, enough animal friendly chicken meat products, whether they trust the supermarkets' chicken concepts and whether they understand these chicken concepts. The results are presented in figure 17 below. It seems that the respondents mostly answered neutral or 'don't know' which could indicate that at this point in the survey they were not as interested in answering the questions. It does seem, however, that many respondents (46,3 percent) (completely) agree with the statement that the supermarket has enough animal friendly chicken meat products. Also, 37,9 percent seems to trust the chicken meat concept of the supermarket although only 12,7 percent claims to understand it.

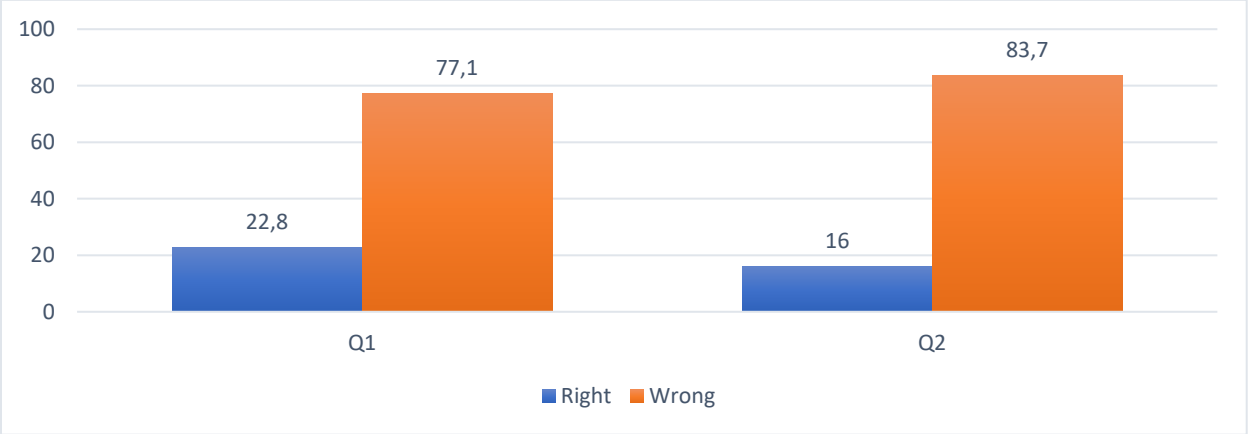
Figure 17: Responses to statements on the supermarket (%)



The respondents were also asked a number of questions to test their knowledge on the minimum standards of their supermarket. Whether they answered the 2 questions right or wrong depends on the supermarket they go to. They were asked to compare the standard chicken of their supermarket to the chicken with the 1 star Beter Leven quality label regarding how fast they grow (Q1) and how much space the broilers have (Q2) in comparison (see table 8 for the exact questions) . The number of right and wrong answers are presented in figure 18 below. 'Don't know' responses were also considered as wrong answers because it also indicates insufficient knowledge. The results indicate that most Dutch consumers have insufficient knowledge on the minimum standards of their supermarket regarding broiler welfare. About 77 percent of the sample has answered the first question wrong and about 84 percent answered the second question wrong.

Q1	Is the standard chicken (with minimal welfare requirements) in your supermarket/shop of a slow growing breed?
Q2	How much space does the standard chicken of your supermarket/shop have?

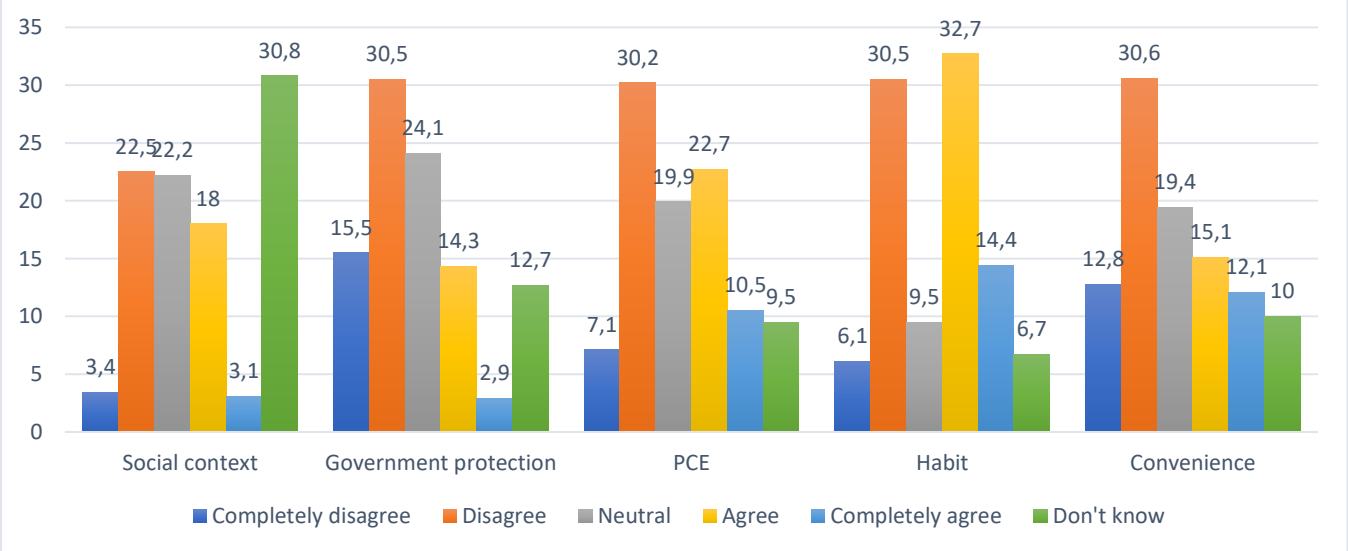
Figure 18: Knowledge on the chicken concepts of the supermarket (%)



Other factors

The other factors respondents were asked on are convenience, habit, PCE, whether they think the government protects broiler welfare sufficiently and social context. The responses to the different statements are presented in figure 19 below. About 43,4 percent agrees that it is a hassle to have to go to another location for animal friendly chicken meat, emphasizing the importance of these products in the supermarkets. Thus, purchasing chicken meat as part of the general groceries seems to be more convenient for many Dutch consumers. Many (47 percent) are used to always purchasing the same chicken meat product. There are slightly more consumers with a low PCE (37 percent) than with a high PCE (33 percent). Surprisingly, only 17,2 percent thinks that the national government is protecting broiler welfare in the Netherlands sufficiently while many (46 percent) think that broiler welfare is insufficiently protected. Many respondents (31 percent) were not aware of the chicken meat products their social contacts are purchasing.

Figure 19: Responses to statements on convenience, habit, PCE, government protection and social context (%)



6.2 Citizen-consumer Gap

Section 6.1 has given a comprehensive overview of the answers to the survey questions and showed some interesting results that will contribute to answering the research question. In this section the hypothesis as set out in chapter 4 for sub-question 1 will be tested based on the relevant data. The first sub question to be answered in this study is: 'Is there a citizen-consumer gap regarding broiler welfare in the Netherlands?'. The expectation is that there is a citizen-consumer gap regarding broiler welfare in the Netherlands. Dutch consumers of chicken meat are expected to care about broiler welfare without translating this attitude into consumer behavior. One hypothesis will be tested for this sub question and the first sub question, 'Is there a citizen-consumer gap regarding broiler welfare in the Netherlands?', will be answered.

H1: There is no strong correlation between attitude towards broiler welfare and consumer behavior.

Because the variables 'attitude towards broiler welfare' and 'consumer behaviour' are both ordinal, hypothesis 1 was tested by calculating Spearman's rank correlation coefficient. The correlation is significant ($p < 0,01$). There is a moderately strong correlation between rank scores of the attitude towards broiler welfare and the rank scores of consumer behaviour, $r = 0,370$, $p = 0,000$.

There is thus no strong nor weak cohesion between the attitude towards broiler welfare and consumer behaviour which means that hypothesis 3 is assumed based on the definition of a citizen-consumer gap used in this study.

The answer to the first sub question is thus: Yes, there is a citizen-consumer gap regarding broiler welfare in the Netherlands. It does seem to be, however, not a large gap. The attitude towards broiler welfare does seem to play an important role for the consumer behaviour of Dutch consumers of chicken meat. Still, other factors must influence consumer behaviour as well. In the next section these possible other factors will be tested, and the second sub question will be answered.

6.3 Explaining the Citizen-consumer Gap

In this section the hypotheses as set out in chapter 4 for sub-question 2 will be tested based on the collected data. If the attitude on broiler welfare shows only a moderately strong correlation with consumer behavior, other factors must have an influence as well. Thus, the second sub question to be answered in this study is: 'How can the citizen-consumer gap be explained?'. This will be tested based on multiple hypotheses that relate to other possible factors that could influence consumer behavior.

H2: Knowledge on the welfare of broilers in the Netherlands has a significant positive influence on broiler friendly consumer behavior.

The aim of hypothesis 2 is to find out whether the more knowledge a person has on the welfare of broilers in the Netherlands the more broiler welfare friendly consumer behavior they show. Firstly, the data on whether Dutch consumers think they have sufficient knowledge on FAW in the Netherlands will be used. The variables 'thoughts on knowledge on FAW' and 'consumer behavior' are both ordinal, thus Spearman's rank correlation coefficient was calculated which shows the relationship between their rank scores. The correlation is significant ($p < 0,01$). There is a weak positive correlation between the rank scores of knowledge on broiler welfare and consumer behaviour, $r = 0,283$, $p = 0,000$.
Based on the information that is available and the outcome of the test, hypothesis 2 is rejected. Whether Dutch consumers think they have sufficient knowledge on broiler welfare in the Netherlands only shows a weak positive correlation.

H3: A lack of knowledge on the meaning of the Beter Leven quality labels has a significant negative influence on broiler friendly consumer behavior.

Hypothesis 3 assumes that when there is a lack of knowledge on the meaning behind the Beter Leven quality labels this results in less broiler friendly consumer behavior. Firstly, the data on whether the consumers think they understand the Beter Leven quality labels will be used. The variables 'thoughts on understanding of Beter Leven' and 'consumer behavior' are both ordinal, thus Spearman's rank correlation coefficient was calculated. The correlation is significant ($p < 0,01$). There is a weak positive correlation between the rank scores of thoughts on understanding of Beter Leven labels and broiler friendly consumer behavior, $r = 0,199$, $p = 0,008$.
Based on the outcome of the test, hypothesis 3 is rejected. This indicates that neither knowledge on broiler welfare in the Netherlands (H2) nor knowledge on the meaning of the Beter Leven quality labels have much influence on consumer behaviour.

H4: People whose social contacts show broiler friendly consumer behavior are more likely to show broiler friendly consumer behavior.

Hypothesis 4 assumes that the more the respondent think that social contacts (family, friends and acquaintances) purchase animal friendly chicken meat, the more animal friendly chicken meat they purchase themselves as well. The variables 'social context' and 'consumer behavior' are both ordinal. Thus, Spearman's rank correlation coefficient was calculated. The correlation is significant ($p < 0,01$).

There is a moderately strong positive correlation between the rank scores of the social context and consumer behavior, r = 0,464, p = 0,000. This means that hypothesis 4 is assumed.
This indicates that the social contacts of Dutch consumers influence consumer behavior. The more family, friends and acquaintances show broiler friendly consumer behavior the more they show this behavior themselves as well.

H5: Low level of trust in the 'Beter Leven' quality label has a significant negative influence on broiler friendly consumer behavior.

Hypothesis 5 assumes that a low level of trust in the Beter Leven quality labels will likely result in less broiler friendly consumer behavior. The variables 'trust in Beter Leven' and 'consumer behavior' are both ordinal thus Spearman's rank correlation coefficient was calculated. The correlation is not significant (p > 0,01). Hypothesis 5 is thus rejected. This indicates that for Dutch consumers, the trust in the Beter Leven quality labels does not have a significant influence on their consumer behavior regarding the level of animal welfare of chicken meat.

H6: Low level of trust in the concepts of the supermarket has a significant negative influence on broiler friendly consumer behavior.

Hypothesis 6 assumes that when consumers have low trust in the chicken meat concepts of the supermarket this results in less broiler friendly consumer behavior. Both variables 'trust in supermarket concept' and 'consumer behavior' are ordinal thus Spearman's rank correlation coefficient was calculated. The correlation is not significant (p > 0,01). Hypothesis 6 is thus rejected. This indicates that for Dutch consumers, the trust in the chicken meat concept of the supermarket does not have significant influence on their consumer behavior regarding the level of animal welfare of chicken meat.

H7: The perception that the national government is already taking sufficient care of broiler welfare in the Netherlands has a significant negative influence on broiler friendly consumer behavior.

According to hypothesis 7 it is assumed that when respondents think that the government is taking sufficient care of broilers in the Netherlands the less broiler friendly their consumer behavior is. Both the variables are ordinal; thus, Spearman's rank correlation coefficient was calculated. The correlation is significant (p < 0,01). There is a weak negative correlation between the rank scores of the thought

that the government takes sufficient care of broiler welfare in the Netherlands and consumer behavior, r = -0,262, p = 0,001. Hypothesis 7 is assumed although the correlation is weak.
This indicates that the thought that the national government is already taking sufficient care of broiler welfare in the Netherlands results in less broiler friendly consumer behavior, but this influence is weak.

H8: Perception of availability has a significant positive influence on consumer behavior.

Hypothesis 8 assumes that when respondents think that there are enough animal friendly chicken meat products in the supermarket, they also show more broiler friendly consumer behavior. The variables are ordinal and Spearman's rank correlation coefficient was calculated. The correlation is significant ($p < 0,01$). There is a weak negative correlation between the perception that the supermarket has a sufficient supply of animal friendly chicken meat and consumer behavior. Thus hypothesis 8 is rejected.
This indicates that the perception of availability of animal friendly chicken meat products actually has a negative influence on broiler friendly consumer behavior. The more Dutch consumers perceive that there is a sufficient number of options for animal friendly chicken meat products, the more likely they are to show less broiler friendly consumer behavior.

H9: Convenience has a significant positive influence on consumer behavior.

It is expected that when respondents find it inconvenient to go to another store for animal friendly chicken meat, they also show less animal friendly consumer behavior. Spearman's rank correlation coefficient was calculated for hypothesis 9. The correlation is significant ($p < 0,01$). There is a weak positive correlation between the convenience of purchasing chicken meat at the supermarket and consumer behavior, r = 0,295, p = 0,000.
This indicates that when Dutch consumers find it convenient to purchase chicken meat as part of their grocery purchase, they also show more broiler friendly consumer behavior. There is only a weak influence, however.

H10: Habit has a negative influence on broiler friendly consumer behavior.

With hypothesis 10 it is assumed that when the respondents are used to always buying the same chicken meat product, they also show less broiler friendly consumer behavior. Spearman's rank correlation coefficient was calculated. The correlation is significant ($p < 0,05$). There is a weak negative

correlation between the habit of always purchasing the same chicken meat product and consumer behavior, r = -0,155, p = 0,042. Hypothesis 10 is assumed.
This indicates that when Dutch consumers are used to always purchasing the same chicken meat product, they show less broiler friendly consumer behavior, but this is only a weak influence.

H11: The higher perceived consumer effectiveness the more broiler friendly consumer behavior.

Hypothesis 11 indicates that the more consumers believe that their purchase can influence the level of broiler welfare, the more they show broiler friendly consumer behavior. Both variables 'PCE' and 'consumer behavior' are ordinal thus Pearson's rank correlation coefficient was calculated. The correlation is not significant (p > 0,01). Thus, hypothesis 11 is rejected. This indicates that for Dutch consumers, PCE does not have a significant influence on their consumer behavior regarding the level of animal welfare of chicken meat.

H12: The importance of the price of broiler meat products has a significant negative influence on broiler friendly consumer behavior.

Out of all the product attributes, it was expected that the importance of the price of the product would have a significant negative influence on consumer behavior. Spearman's rank correlation coefficient was calculated. The correlation is significant (p < 0,01). There is a strong negative correlation between the importance of price and consumer behavior, r = -0,585, p = 0,000. Hypothesis 12 is assumed.
This indicates that the more Dutch consumers find the price of the product important the less broiler friendly consumer behavior they show and that this is a strong influence.

Chapter 7: Conclusion

In this research the aim was to answer the question: 'Does a citizen-consumer gap exist regarding broiler welfare in the Netherlands, how can it be explained, and what does this mean for animal welfare policies?'. To be able to answer this question quantitative research was conducted on the attitude of Dutch consumers of chicken meat products on broiler welfare and the factors influencing their consumer behavior. This chapter will start with answering the first two sub questions which relate to whether there is a citizen-consumer gap regarding broiler welfare in the Netherlands and how this can be explained based on the results and previous research and literature. Then the chapter aims to answer the third sub question which focusses on what the explanation of the citizen-consumer gap means for animal welfare policies. The chapter ends with an evaluation of the research process and gives recommendations for further research.

7.1 The Citizen-consumer Gap

The results indicate that a citizen-consumer gap does exist in the Netherlands regarding broiler welfare, but that it is not a large gap. The attitude towards broiler welfare does have influence on purchasing choices, which indicates that when Dutch consumers find the protection of broiler welfare important, they are also more likely to purchase more broiler friendly chicken meat. This is in line with the expectation for this study and the existing literature that claims that people as citizens value farm animal welfare, but this attitude does not translate sufficiently into consumer behavior (Harvey & Hubbard, 2013).

How can this be explained? The attitude towards broiler welfare has a moderately strong influence on consumer behavior, but there are two other factors that were found to have a stronger influence. Firstly, the results indicate that the social context of Dutch consumers has a strong influence on consumer behavior. When the person thinks that their family, friends, and acquaintances purchase chicken meat products with a high level of broiler welfare, they are also more likely to show this type of consumer behavior themselves. About 31 percent of respondents did not know the consumer behavior of their social contacts and 26 percent thinks that their social contact do not purchase animal friendly chicken meat compared to 21 percent that do think their social contacts purchase animal friendly chicken meat. This indicates that a significant portion of Dutch consumers have their consumer behavior regarding broiler welfare significantly influenced by the consumer behavior of the people they know. This is in line with previous research which mentions that social norms is one of the factors driving everyday consumption (Vermeir & Verbeke, 2004) and consumers can tend to look at the behavior of other people to make consumer choices, especially when they are confused about the

information that is provided to them (Verbeke & Ward, 2006). As the results show, the level of trust and understanding of the Beter Leven quality labels is low, which could explain why consumers in the Netherlands tend to let their social contacts influence their consumer behavior regarding chicken meat and broiler welfare.

Secondly, the results show that the importance of the price of the product has a strong influence on consumer behavior, so the more important the price, the less broiler friendly their consumer behavior. A large proportion (61 percent) of the respondents finds the price of the products (very) important and only a small group (14 percent) finds the price (very) unimportant. This was an expected outcome, because a large proportion of Dutch citizens (about 40 percent) has a low income (CBS c, 2019) and overall, the more animal friendly the product the more expensive it is (Bos, Van Den Belt & Feindt, 2018). Furthermore, previous research has also concluded that consumers mostly look at the price to determine which product they purchase (Leenheer, 2015). This study lends support to this finding as well. From the product attributes that consumers in the Netherlands can see on the packaging (price, level of FAW, the quality label and its origin) the price seems to be the most important although not much more important than the level of FAW.

The results also indicate a number of factors to have significant, although weak, influence on consumer behavior. Firstly, it seems that when Dutch consumers think that the national government is already taking sufficient care of broiler welfare, they are more likely to show less broiler friendly consumer behavior. This was an expected outcome based on previous research. The highest proportion of respondents in the EU who did not believe the welfare of farmed animals should be better protected is observed in the Netherlands (31 percent) (European Union, 2015). This could be explained by the thought of Dutch citizens that the national government is protecting broiler welfare sufficiently. Surprisingly, many respondents (46 percent) believe that the national government is not protecting broiler welfare sufficiently. Thus, the observed correlation does not clearly help to explain the citizen-consumer gap regarding broiler welfare in the Netherlands.

A weak influence on consumer behavior is also seen when Dutch consumers, out of habit, always purchase the same chicken meat product. As previous research suggests, habit influences consumer behavior (McInerney, 2004; Vermeir & Verbeke, 2004), which is what is concluded in this study as well. Since the results also show that almost half of the respondents is used to always purchasing the same chicken meat product this could be part of the explanation of why there is a citizen-consumer gap as the results show that habit has a negative influence on broiler friendly consumer behavior.

The same can be concluded about convenience. The results indicate that Dutch consumers show more broiler friendly consumer behavior when they find it convenient to purchase chicken meat as part of their grocery purchasing. This is in line with the research by Vermeir and Verbeke (2004) who claim that both habit and convenience are driving forces behind consumer behavior. Many (about 43

percent) of the respondents think it is a hassle to go to another location for animal friendly chicken meat. The role of convenience is thus possibly part of the explanation of why the citizen-consumer gap exists. It also underlines the importance of the availability of animal friendly chicken meat products in the supermarket.

Many respondents agreed that the supermarkets have sufficient availability of animal friendly chicken meat products. This is surprising since Dutch supermarkets mostly offer chicken meat without quality labels (AD, 2019; Wakker Dier b, 2020). What is even more surprising is that the results indicate that the more a Dutch consumer perceives that there is sufficient availability of animal friendly chicken meat products, the less they show broiler friendly consumer behaviour. Multiple scholars suggest that availability of ethical products have the opposite effect on consumer behaviour (Nicholls & Lee, 2006; Boulstridge & Carrigan, 2000). As more persons do (46,3) perceive sufficient availability of broiler friendly chicken meat products in the supermarket than not (16,4 percent) this outcome is not a clear contribution to the explanation of the citizen-consumer gap.

The factors discussed thus far influence consumer behavior regarding animal friendly chicken meat according to the results, but there were also a number of factors tested that did not seem to have a significant influence. The results indicate that knowledge on both the level of welfare of broilers in the Netherlands and knowledge on the Beter Leven quality labels have no significant influence on the consumer behavior regarding animal friendly chicken meat. This is not in line with previous research that found that limited knowledge of the poultry meat sector and a wrong perception and knowledge of quality labels can impact consumer choice (Verbeke, 2005; Verbeke & Ward, 2006).

A lack of trust in quality labels and the chicken meat concepts of the supermarkets were considered one of the most important barriers for animal friendly consumer behavior according to the literature (Jahn, Schramm & Spiller, 2005; Mulder & Zomer, 2017). Thus, it is unexpected that there was no significant correlation found between trust and consumer behavior in this study.

According to Roberts (1996) perceived consumer effectiveness also determines consumer behavior; thus, it was a factor that was expected to apply to the consumer behavior of Dutch consumers as well. However, this correlation was not found in this study, indicating that PCE is neither a barrier nor motivator for more broiler friendly consumer behavior in the case of Dutch consumers.

These unexpected outcomes could indicate that for Dutch consumers knowledge and trust do not play a role while in other countries this correlation can be found. This gives reason to conduct research on the citizen-consumer gap in other countries as well as it is very much possible that the factors influencing consumer behavior differ per country.

7.2 What This Means for Animal Welfare Policies

Now that the citizen-consumer gap is recognized and explained, one must consider the implications this has for animal welfare policies. Currently, EU regulation for the protection of farm animals is in place (Miele, Murdoch & Roe, 2005; European Commission, n.d.). The Netherlands has implemented the regulation and appointed an authority to enforce this (Kossen & Verbraak, 2017). According to the outcome of this study there are 3 main factors influencing consumer behavior regarding the welfare of broilers: the attitude towards broiler welfare protection, social norms, and the importance of price. The attitude towards broiler welfare is, as the results show, already rather positive. This raises and number of questions for animal welfare policies relating to the social norms and the importance of price for the respondents in this study.

Firstly, if social norms are so determinative for consumer behavior, one could wonder how these social norms can be changed for more broiler friendly consumer behavior. The national government could, for instance, use demonstration as a policy instrument which means that the government will need to be an example for the citizens of the consumer behavior that is desirable (McInerney, 2004). Thus, the chicken meat products used in the public sector must meet high FAW standards. Through this policy approach, citizens are demonstrated that the costs are worth it as it improves farm animal welfare (McInerney, 2004). Another way to change social norms is by campaigning. This can be executed by NGO's for example but by the government as well. The goal of such campaign is thus to convince citizens that purchasing chicken meat with high FAW standards is the social norm. If such a campaign is done effectively, this could result in more broiler friendly consumer behavior because people will believe that is the consumer behavior of most members within society. If social norms are found to be of influence in other EU countries as well, campaigning can also be supported at the EU level as well as the use of demonstration. Another instrument that can be looked at is the concept of nudging which uses positive reinforcement to change certain behavior (Guldborg Hansen, 2016). However, how nudging can be used to change social norms regarding broiler friendly consumer behavior must be researched first and lays outside of the scope of this study.

Secondly, the price is important to most of the respondent and this shows a strong correlation with consumer behavior regarding broiler welfare which poses the question: how can we lower the price of broiler friendly chicken meat? There are two policy measures that can be used to lower the price of these products: the use of consumer subsidies and welfare subsidies (McInerney, 2004; Ingenbleek, Immink, Spoolder, Bokma & Keeling, 2012; Salzman, 2013). In this case, consumer subsidies would lower the price of products with a high level of FAW for the consumer only. The specific requirements for such subsidies must be established, such as a minimum of the Beter Leven label with 1 star or 2 stars. Welfare subsidies compensate for the extra costs that the farmers make when increasing or

maintaining the broiler welfare standards of their broilers (McInerney, 2004). This would also result in a lower product price for chicken meat products with a high level of FAW, because the extra costs of the farmer are compensated for which means they are not forced to increase the price of their broilers. If the price is found to be a very important factor influencing consumer behavior regarding broiler welfare in other EU countries as well, then the subsidies and the requirements for these subsidies can be established at the EU level as well.

As the results also show that the respondents find the quality and the minimal use of antibiotics the most important when purchasing chicken meat, even more important than the price and the level of animal welfare. However, information on the quality and use of antibiotics are not provided on the packaging of the chicken meat product. It could thus be helpful for the consumer to oblige producers of chicken meat to indicate the quality and use of antibiotics on their packaging. Chicken meat with higher FAW standards is often of better quality for a number of reasons such as reduction of stress and a better water holding capacity (Kralik, Kralik, Grčević & Hanžek, 2017). Also, the use of antibiotics is less necessary in more extensive farming systems as the broilers are then less likely to need treatment (Compassion in World Farming, 2018). Thus, if the use of antibiotics and the quality of the product are shown on the packaging this could result in a higher demand for broiler friendly chicken meat products.

7.3 Reflection on the Research Process and Recommendations for Further Research

One major challenge in this research is the fact that the concept of ethical consumption is rather complex and there is limited research on many factors influencing consumer behavior (Bray, Johns & Kilburn, 2010). This makes it difficult to form expectations for this study. It is thus very much possible that there are processes or factors influencing consumer behavior that are not yet clearly defined or recognized.

A number of challenges occurred during the process of data collection as well. The survey was spread through social media channels of both the author and the organization Wiardi Beckman Stichting. One issue was the fact that it was mostly high educated persons responding to the survey and it was difficult to find respondents in the oldest age group. This could be explained by the amount of high educated people that follow the social media-accounts of the Wiardi Beckman Stichting and a limited amount of Facebook users in the oldest age group. Still, a total of 172 respondents were collected and analysis of the hypotheses were possible with that amount of responses. A recommendation for further research is to focus more on finding respondent that are lower educated and people that are old. If it is possible, these could, for example, be found by spreading surveys on paper for instead of online.

During the research process it was apparent that there are still many unanswered questions for which further research is necessary. Currently, it is unclear how the citizen-consumer gap can be recognized

in a certain region. A definition on what the citizen-consumer gap is exists, but the method for recognizing such a gap is still not universally decided. This is due to the limited research on this complicated phenomenon, and thus calls for a lot more research on the citizen-consumer gap in general.

It is also momentous to research whether a citizen-consumer gap can be recognized in other EU countries as well. This is especially important for animal welfare policies since regulation for the protection of farm animal welfare mostly comes from the EU level (Miele, Murdoch & Roe, 2005; European Commission, n.d.). If certain factors are believed to influence consumer behavior in many EU countries, such as the influence of social norms for example, then demonstration and campaigning as discussed in the previous section should be executed at the EU level. Again, for research across the European Union with results that can be compared on a country basis it is important to establish how a citizen-consumer gap can be recognized.

At the moment, EU competition law does not allow for agreements that benefit society as a whole if it does not benefit the consumer (Ministry of Economic Affairs, 2014). Some research is necessary to find out if it would be beneficial to change EU competition law to allow for such agreements that only benefit society as a whole. This could possibly make the improvement of farm animal welfare across Europe more likely. Furthermore, this could also allow more agreements that benefit the environment.

Another important aspect for the improvement of FAW is the enforcement of the animal welfare laws that are in place. More research is needed to find out how the enforcement can become more effective, because if the enforcement of these laws is insufficient the regulation does not have the desired effect and leads to the insufficient protection of farm animals in the European Union.

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Appendix 1: The survey (English translation)

1. **Do you regularly purchase chicken meat for your household? (Control question)**

- Yes
- No

Purchasing behavior and knowledge

In this section of the survey you are asked to make a choice between different pieces of chicken.

Be aware! With these types of questions persons tend to answer according to social or ethical considerations. It is very important for the validity of the research that you answer honestly.

2. **Imagine yourself shopping for groceries. Which of the following options do you go for?**

- Price: 4 euros. Beter Leven 2 stars. From France
- Price: 5,80 euros. Beter Leven Organic 3 stars. From the Netherlands
- Price: 1,60 euros. Home brand. From the Netherlands.
- Price: 2,89 euros. Beter Leven 1 star. From the Netherlands
- Price: 6 euros. Beter Leven 3 stars. From France.

3. **Indicate how important the following aspects are when purchasing chicken meat.**

- That it is from the Netherlands
- What it looks like
- The quality
- The brand
- The price
- The label
- The level of animal welfare

- Minimal use of antibiotics
- Minimal impact on the environment

4. **Chicken meat without the Beter Leven quality label automatically means that the chicken had a low level of welfare.**

o True

o False

o I don't know

5. **Which Beter Leven quality label indicates the least space for the chicken?**

o 1 star

o 2 stars

o 3 stars

o I don't know

6. **Chickens with the Beter Leven quality label 1 star and 2 stars have the same age at slaughter.**

o True

o False

o I don't know

7. **Most broilers in the Netherlands are no longer 'standard chickens' (little space, short life, unhealthy)**

o True

o False

o I don't know

8. **Is the standard chicken of your usual supermarket/shop of a slower growing breed?**
    - The breed grows slower than Beter Leven 1 star chickens (45 grams per day)
    - The breed grows faster than Beter Leven 1 Star chickens
    - The breed grows at the same pace as Beter Leven 1 star chickens
    - I don't know

9. **How much space does the standard chicken of your usual supermarket/shop have?**
    - More than the Beter Leven 1 star chicken (12 chickens per square meter)
    - Less than the Beter Leven 1 star chicken
    - The same amount as the Beter Leven 1 star chicken
    - I don't know

10. **Please indicate to what extent you agree or disagree with the following statements. (Likert scale)**

A. The protection of the welfare of chickens bred for meat consumption (broilers) is important.

B. My friends, family and acquaintances buy chicken meat that is animal friendly.

C. I have sufficient knowledge on the level of broiler welfare in the Netherlands.

D. I understand the meaning behind the 'Beter Leven' label.

E. I understand the meaning behind the chicken concepts of supermarkets.

F. I do not trust the 'Beter Leven' labels.

G. I do not trust the chicken concepts of supermarkets.

H. The Dutch government is taking sufficient care of broiler welfare in the Netherlands.

I. The supermarket/shop I do groceries at has enough animal friendly chicken meat options.

J. I find it inconvenient to go to another location to purchase animal friendly meat.

K. My usual supermarket/shop ensures high minimum standards for the welfare of broilers.

L. My consumer behavior does not influence the welfare of broilers.

M. I am used to always buying the same chicken product.

11. At which supermarket do you purchase most of your groceries?

- Albert Heijn, Deen, Plus
- Coop, Dekamarkt, Dirk, Hoogvliet, Jan Linders, Poiesz, Spar, Vomar
- Boni
- Lidl
- Aldi
- Jumbo, Boon's markt, MCD, Nettorama
- The market
- Other

12. What is your age?

- 18-19 years old
- 20-39 years old
- 40-64 years old
- 65-80 years old
- Older than 80 years old

13. What is your gender?

- Male
- Female
- Other

14. What is your yearly income (in euros)?

- Less than 20.000
- 20.000-30.000
- 30.000-40.000
- 40.000-50.000
- More than 50.000

15. What is your highest completed education? (see appendix 2 for English translations)

- Basisonderwijs, Vmbo, havo-, vwo-onderbouw or mbo1
- Havo, vwo or mbo2-4
- Hbo-, wo-bachelor, Hbo-, wo-master or doctor

Appendix 2: Operationalization

Personal characteristics

Concept	Description	Question
Gender (male, female, other)	Persons can identify with the male, female or other/no gender.	13
Age	Number of years the person has been alive	12
Level of education	The highest level of education completed	15
Yearly income (low, medium, high)	The compensation that a person receives for labour in one year + profit if it is available to that person.	14

Source: Lexico.com (2020)

Different income levels

Income level	Yearly income in euros
Low	<20.000
Below average	20.000-30.000
Medium	30.000-40.000
Above average	40.000-50.000
High	>50.000

Source: Statista (2019)

Different education levels

Education level	Classification in the Dutch education system	English Translations
Low	Basisonderwijs, Vmbo, havo-, vwo-onderbouw, mbo1	Primary education, pre-vocational secondary education, junior high school higher general secondary education, junior high school pre-university education, intermediate vocational education 1
Medium	Havo, vwo, mbo2-4	Higher general secondary education, pre-university education, intermediate vocational education 2-4
High	Hbo-, wo-bachelor, Hbo-, wo-master, doctor	Higher vocational education, university education, doctor

Source: CBS c (2020)

Concepts sub-question 1

Hypothesis	Concept	Description	Question
1	Broiler welfare	The physical and mental wellbeing of chickens bred and raised for meat production	n/a
1	Attitude	Way of thinking or feeling about something	10A
1	Behavior	The way in which a person behaves in response to a situation or stimulus associated with purchase	2

Source: Lexico.com (2020)

Concepts sub question 2

Hypothesis	Concept	Description	Question
2, 3	Knowledge	Having the knowledge, information or training about something	4 – 9
2	Welfare	Physical and material wellbeing	7
2,3,4,5,6,7,8, 9,10,11,12	Broiler friendly consumer behavior	Purchasing a chicken meat product with the Beter Leven quality label	3-10
4	Social contacts	Friends, family, and acquaintances	10B
5,6	Trust	Firm belief in the reliability of something (here: Beter Leven quality label)	10F, 10G
7, 8	Perception	The way in which something is understood or interpreted.	10H, 10I
8	Availability	Ability to be obtained	10I
10	Habit	A regular practice	10M
11	Perceived consumer effectiveness	The consumer's level of confidence in being able to bring about change through their consumer behavior	10L
12	Importance of price	The significance or value given to the amount of money required in payment for something (here: chicken meat)	3

Source: Lexico.com (2020)