

Reducing meat consumption: A comparative case study of the tobacco tax and the meat tax

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Executive summary

The transition towards sustainable, healthy diets in Europe is necessary to make Europe the first climate-neutral continent by 2050 and achieving the United Nations Sustainable Development Goals. It is well established that meat production and consumption are unsustainable from environmental and health points of view. Therefore, a reduction in meat consumption is an essential part of the transition towards sustainable, healthy diets in Europe. This dissertation aims to substantiate the implementation of a meat tax to reduce meat consumption in the Netherlands. It evaluates to what extent the tobacco tax case can function as an example for implementing a meat tax in the Netherlands. A comparative case study was used, where the tobacco tax and meat tax were examined in-depth through collected primary qualitative data of a conducted interview. And through secondary quantitative and qualitative data collected through academic journals, books, reports, websites, articles, statistics, and newspapers. In the analysis, the results of the in-depth examination of the tobacco tax case and the meat tax case were compared on their differences, similarities and patterns. The analysis produced generalized knowledge and insights on reducing consumption and the causal relationship between taxation and a reduction in consumption. The analysis shows that the tobacco tax case and the meat tax case are parallel to another based on their objective, approach, and causal relationship between taxation and a reduction in consumption. The findings show that the tobacco tax case sets an excellent example of how a multidisciplinary approach can reduce consumption. Policies focused on raising awareness of the negative externalities of meat and price increases of meat products are prominent policy initiatives in a multidisciplinary approach to reduce meat consumption in the Netherlands. These results suggest that implementing a meat tax is an effective measure to reduce meat consumption in the Netherlands. Furthermore, the analysis produced generalized knowledge and insights on the repercussions of using taxation to reduce consumption. Regressive effects on low-income households, indirect rebound effects, cross-border shopping and illicit trade, were identified as possible repercussions. Financial support to low-income households, progressively graduated prices, policy mixes, and economy-wide pricing were identified as potential methods to mitigate these repercussions. However, the analysis shows that further research is required to determine and assess the possible repercussions and ways to minimize those repercussions. This dissertation concludes that the tobacco tax case provides an excellent example of how to reduce meat consumption in the Netherlands and how a meat tax plays a prominent part in this transition.

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Introduction

The European Commission has recently introduced the Farm to Fork Strategy as part of the European Green Deal to address the challenges that come with making Europe the first climate-neutral continent by 2050 and achieving the United Nations Sustainable Development Goals (SDGs) (2020). The Farm to Fork strategy is intended to facilitate the shift towards a sustainable European food system because the current European food system, which entails the production, consumption and waste of food, is unsustainable from both health and environmental points of view (European Commission, 2020). In particular, the livestock sector has many negative externalities for public health and the environment. The livestock sector causes worldwide 14.5% of the total greenhouse gas emissions and generates pollution, biodiversity loss, and overuse of water (FAO, n.d.) (Compassion in World Farming, 2017). Meat is the food group that produces the most greenhouse gas emissions. In contrast, fruit and vegetables are the ones that produce the least greenhouse gas emissions (The National Institute of Public Health and Environment, 2020).

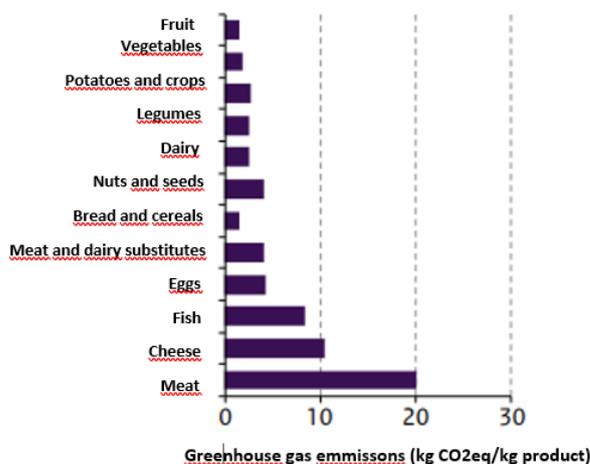


Figure 1: The average greenhouse gas emissions for each different food group that are part of Dutch diets. Acquired and adjusted from the Consumption of meat in the Netherlands (p.2) by the National Institute of Public Health and Environment, 2020.

To put it in another perspective, if a person cut meat out of their diet for one week, it would save 130 liters of water, 76 kilometres of driving and 770 kilograms of meat (Broekema, 2018). Furthermore, red and processed meat consumption increases the risk of diseases like diabetes type 2, colorectal cancer and lung cancer (National Institute for Public Health and Environment, 2020). According to the Institute for European Environmental Policy (2018), “Livestock’s estimated carbon footprint is incompatible with keeping global warming well below 2 degrees and addressing a range of other environmental challenges”. The

Executive Director Jacqueline McGlade of the European Environment Agency (2012) has stated that “Continuing with current consumption patterns in Europe is not an option”. Although there was a slight decrease in meat consumption in the Netherlands between 2010 and 2015, there was a significant increase observed in 2018 and 2019 (Wageningen University & Research, n.d.). It is expected that without any action, meat consumption will continue to increase worldwide due to a growing population and an increase in welfare (Wageningen University & Research, n.d.). Because the consumption of meat contributes to the unsustainable food system of the EU, the European Commission (2020) acknowledges in their action plan on the Farm to Fork Strategy that there is a need for “promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets”. The proposed diet entails “a more plant-based diet with less red and processed meat and with more fruits and vegetables” (European Commission, 2020). The Dutch National Institute for Public Health and the Environment acknowledges that a transition to diets with fewer animal products is necessary (2020).

Nevertheless, one of the greatest challenges is to promote and facilitate the shift to healthy, sustainable diets with less red and processed meat. Professor Allan Buckwell of the Institute for European Environmental Policy states that “It requires strong signals from the government so the policy proposal must include measures to discourage consumption of livestock products harmful to public health and the environment.” (Neslen, 2018). Although the Farm to Fork Strategy does not include a precise action plan for reducing the consumption of meat in the EU it does verify that “EU tax systems should also aim to ensure that the price of different foods reflects their real costs in terms of use of finite natural resources, pollution, GHG emissions and other environmental externalities.” (European Commission, 2020). At the moment, the price of meat does not reflect the environmental, health and other costs of production and consumption (True Animal Protein Price Coalition, 2020). Moreover, the Common Agricultural Policy subsidies for the livestock sector cause overproduction and low prices for meat (Mcmillan, 2016) & (Nutrition Ecology International Center, n.d.). If all external costs were included in the price of meat, it would be a lot higher since the total annual damage associated with meat consumption in the Netherlands amounts 4.5 billion euros (de Bruyn, Odegard & Warringa, 2018). Therefore, to reduce meat consumption, the True Animal Protein Price Coalition and CE Delft advocate for integrating the external costs of meat into the price, claiming that it will reduce meat consumption (Odegard, Sinke & Vergeer, 2020). In the case of implementing a meat tax, there is often referred to other successful cases where a tax was implemented to discourage certain consumption behaviours (e.g., tobacco, sugar, alcohol and gasoline). Notice the tobacco tax case where the higher price of tobacco products resulted in a decline in tobacco use

(World Health Organization, 2020). Therefore, this dissertation aims to substantiate the implementation of a meat tax to reduce meat consumption in the Netherlands. This dissertation's research question is how the tobacco tax case can justify the implementation of a meat tax to reduce meat consumption in the Netherlands. The sub-research questions are what are the differences, similarities and patterns between the tobacco tax case and the meat tax case.

Methodology

The methodology section of this dissertation elaborates on what methods were used to collect and analyse data to answer the paper's research question (McCombes, 2020). This dissertation examined how the tobacco tax case can justify the implementation of a meat tax to reduce meat consumption in the Netherlands. To answer the central research question, a comparative case study was used. According to Goodrick (2014), "Comparative case studies cover two or more cases in a way that produces more generalizable knowledge about causal questions – how and why particular programmes or policies work or fail to work". A comparative case study was chosen to produce generalized knowledge about the causal relationship between taxation and a reduction in consumption and generate insights on reducing consumption and why taxation contributes to this transition. It was essential to examine a case study with the same independent and dependent variable as the research question. In the light of this dissertation, the independent variable is a higher price and the dependent variable is a reduction in consumption. The tobacco tax case study was chosen because this independent variable resulted in the dependent variable of a decrease in tobacco consumption (World Health Organization, 2020). Across both cases, the meat tax case and the tobacco tax case first needed to be examined and analysed in-depth in the result section of this dissertation (Goodrick, 2014). The two cases were structured according to themes. The consumption, policies to reduce consumption and taxation and a reduction in consumption were the themes that were examined and analysed in-depth across both cases. Second, the results of the in-depth examination of the tobacco tax case and the meat tax case were then compared on their differences, similarities and patterns in the analysis section. To answer the research questions, primary qualitative and secondary quantitative and qualitative data were used. Both quantitative and qualitative data were used. Instead of just identifying a causal relationship through quantitative data, qualitative data produced more knowledge of the causal relationship and helped with a better understanding of the causation (Better Thesis, n.d.). This dissertation collected primary qualitative data through a structured formal interview because it gained in-depth insights into facilitating the transition towards sustainable, healthy diets. The person was recruited through e-mail correspondence and a phone call. The interview was conducted at home, lasted approximately 22 minutes, and answers were recorded by note-taking and a phone recorder. Furthermore, this dissertation collected secondary quantitative and qualitative data through academic journals, books, reports, websites, articles, statistics, and newspapers. Secondary data was accessed through the internet and The Hague University and Royal Library databases.

Literature review

The literature review provides an overview of the current knowledge on the topic of promoting sustainable food consumption through the summarization, analysis, and evaluation of scholarly sources relevant to this topic. To effectively review existing literature on the topic, different themes were organized. Firstly, the literature on sustainable (food) consumption was examined. Secondly, the literature on policies to promote and facilitate the transition towards sustainable food consumption was examined. Thirdly, the literature on economic incentives and promoting sustainable consumption was examined. And fourthly, the literature on the repercussions of economic incentives was examined.

Sustainable (food) consumption

While there is no single definition of the term 'sustainable consumption', the UN Environment Programme has published a broad definition of the term sustainable consumption and production (n.d.). The UN Environment Programme defines sustainable consumption and production as "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations" (n.d.). As was demonstrated in the introduction, current European food consumption patterns are unsustainable and there is a need to promote and facilitate the transition towards sustainable food consumption. Why meat reduction is a significant part of this transition will be further elaborated on in the next chapters. Admittedly, the transition towards sustainable (food) consumption patterns cannot depend on solely one measure. Previous studies have emphasized that multiple factors influence whether consumers choose to consume sustainable or not. In a briefing by the European Parliamentary Research Service, the choice depends on factors like the price, availability, convenience, habits, values, view of themselves, social norms, peer pressure, emotional appeal, and willingness to make a difference (Sajn, 2020). Furthermore, a survey conducted by the European Consumer Organisation (BEUC) in 2019 across 11 European countries found that two-thirds of consumers want to eat more sustainably. However, affordability, availability, lack of information and not knowing which food is most sustainable were the major identified barriers (BEUC, 2020). This phenomenon is also called the intention-action gap, which means that there is a gap between consumers intentions and their actions on consuming sustainably (White, Hardisty, Habib, 2019). As for meat, a report by the Chatham House on Pathways to Lower Meat Consumption found that the public awareness of the negative externalities of meat is low (Wellesley and Froggatt, 2015). The low public awareness of

the negative externalities of meat indicates that the lack of information and not knowing which food is most sustainable are significant barriers for the transition towards sustainable food consumption. The survey conducted by the BEUC also found that most consumers were reluctant to cut down on red meat; only 1 out of 3 was eager to do so (2020). However, when consumers were eager to reduce their consumption of meat, ethical concerns of the treatment of animals and environmental or health concerns were one of the main reasons (Petter 2017). Furthermore, weight loss, inspirational food bloggers, public campaigns, and saving money were reasons consumers reduced their meat intake (Petter, 2017). The findings above show that multiple factors influence the decision for consumers to start consuming more sustainably, where affordability, availability and awareness are the most prominent factors in this transition. In line with this analysis, a journal by Johnston, Fanzo, and Cogill, on the *Determinants and Processes That Influence Diets*, emphasizes that “promoting sustainable diets will require an inclusive approach that reflects the multidisciplinary determinants”(2014). Furthermore, the survey of the BEUC also brought out very clearly that European consumers think that the EU and national governments need to take the lead in promoting and facilitating the shift to sustainable, healthy diets (2020). Therefore, the European Environment Agency acknowledges that making Europe’s consumption more sustainable is achievable but asks for a significant change in public attitudes, policies, and knowledge (2017). This brings us to the next three paragraphs on what needs to be changed regarding policies and knowledge in making Europe’s food consumption more sustainable. Because this dissertation focuses on reducing meat consumption, the next paragraph of this literature review goes more in-depth on the policies that promote and facilitate the transition towards sustainable food consumption.

Policies to promote and facilitate the transition towards sustainable food consumption

The identified barriers and reasons for consumers to start consuming more sustainably opened up an opportunity for policymakers to address these multidisciplinary components through policies. A variety of studies have proposed policy recommendations on this matter. In a report on Growing the Good: The Case for Low-Carbon Transition in the Food Sector, fiscal policies like a meat tax, dietary guidelines, public procurement policies, awareness-raising, health-education campaigns and shifting subsidies away from polluting animal farms were recommended as effective tools (Changing Markets Foundation, 2018). One year later, the EAT–Lancet Commission proposed a more detailed evidence-based strategy to transform to healthy diets from sustainable food systems (Willet et al., 2019). Firstly, they propose to improve the availability, accessibility, and affordability of healthy diets. Moreover, they propose that the external costs of food should be added to the price by

implementing taxes and that taxes and subsidies should stimulate the shift towards healthy, sustainable diets. Secondly, they advise a restricting of advertising and marketing of unhealthy and unsustainable foods. Conversely, they recommend increasing public knowledge through informational campaigns and the start of social movements. By raising public knowledge, the report advises that “relevant national bodies should implement guidelines for healthy diets from sustainable food systems, supported by enabling policies and incentives, and reflected through public procurement policies” (Willet et al., 2019). Thirdly, the report proposes a UN Framework Convention on Sustainable Food Systems, similar to those of the Framework Conventions on Climate Change and Tobacco, to monitor and support the transformation. The recommended measures above demonstrate clear guidelines for policymakers to promote and facilitate the shift towards sustainable, healthy diets. Furthermore, in accordance with the first paragraph, a multidisciplinary approach is required to encourage and facilitate the transition towards sustainable, healthy diets because multiple factors determine food decisions. Furthermore, as demonstrated, adding the external costs of food in the price or implementing fiscal policies like a meat tax are both recommended initiatives to promote and facilitate the shift towards sustainable food consumption. The next paragraph goes more in-depth on the knowledge of using economic incentives to promote sustainable consumption.

Economic incentives and promoting sustainable consumption

Economic incentives have often been used to promote sustainable consumption behaviours. Besides, the UK Health Alliance on Climate Change claims in a report that economic incentives have been the most effective tool in changing unsustainable food consumption patterns and advocates for a food carbon tax (2020). On this matter, the United Nations stated in their action plan of Agenda 21 on changing unsustainable consumption patterns that “Without the stimulus of prices and market signals that make clear to producers and consumers the environmental costs of the consumption of energy, materials and natural resources and the generation of wastes, significant changes in consumption and production patterns seem unlikely to occur in the near future.” (n.d.). The statements above imply that economic incentives play a significant part in promoting and facilitating the shift towards sustainable consumption patterns. More importantly, it is very efficient in discouraging or encouraging sustainable consumption patterns in practice. The Bonus-Malus System in France is a well-founded example of how price signals cause a significant change in unsustainable consumption patterns. With the Bonus-Malus System, the revenues of the charges of emission-intensive cars were used to financially reward the purchasing of electric cars (Monschauer and Kotin-Förster, 2018). The policy instrument

led to a 25% reduction in vehicle emissions since its implementation (Monschauer and Kotin-Förster, 2018). The Bonus-Malus System case proves that price signal, making unsustainable products more expensive than sustainable products, plays an essential role in encouraging sustainable consumption (European Commission, 2012). Furthermore, economic incentives have also been used in other consumption areas and have proven in numerous studies to be very effective. A consumer survey focused on wasted food in the US found that saving money was the primary motivation for consumers to reduce waste (Neff, Spiker & Truant, 2015). Consequently, saving money has motivated consumers to change behaviours. Consider these cases, paying a low fee for a plastic bag in the Netherlands resulted in a reduction in plastic bag usage (Government of the Netherlands, n.d.). Or a charge on water resulted in a reduction in water usage (European Environment Agency, 2013). Furthermore, the sugar tax on soft drinks implemented in 2017 in the UK led to a 28.8% decline in the sugar added to soft drinks (Public Health England, 2019). To summarize the studies above, economic incentives are an effective tool in making consumer behaviour more sustainable. However, the literature suffers from a certain weakness, namely the lack of assessment of the consequences of using economic incentives to encourage sustainable consumption. The next paragraph will elaborate in this regard.

Repercussions of economic incentives

Studies show that the repercussions of economic incentives can hinder the process of achieving the long-term objective. As was demonstrated in the paragraph above, economic incentives are effective in creating sustainable consumption patterns. However, there is a lack of analysis on the repercussions of these economic incentives. First of all, economic incentives, like taxation, can have a regressive effect on low-income households (European Commission, 2012). The European Commission recognizes in their report that taxation may have regressive effects and advises “assistance to low-income households or progressively graduated prices based on taxes” as effective means to mitigate these regressive effects on low-income households (2012). Second of all, economic incentives do not foster self-persuasion and can lead to indirect rebound effects. In the *Handbook of Research on Sustainable Consumption* by Bolderwijk & Steg, there is claimed that merely changing the price structure and making something financially attractive or unattractive will not always change the consumer's behaviour accordingly (2014). The claim is based on the fact that economic incentives do not foster self-persuasion, which means that it will not result in a positive spill over to other sustainable consumption behaviours and will only have an effect when the incentive is in place (Bolderwijk & Steg, 2014). Moreover, in a paper by the

European Council for an Energy Efficient Economy, reducing the intake of meat can even increase global GHG emissions (Sorell, Gatersleben, Druckman, 2018). This situation can occur because of indirect rebound effects (Sorell et al., 2018). An indirect rebound effect is when efficiency actions cause a higher demand in other areas (EE-Rebound, n.d.). To illustrate, a consumer re-spends the cost savings of reducing the intake of meat on buying more unsustainable seafood or he buys himself a flight ticket. The European Council for an Energy Efficient Economy demonstrates that indirect rebound effects are very large for sufficiency actions affecting food products when compared to electricity use and heating or transport fuels (Sorell et al., 2018). Furthermore, they state that “high taxation means that a unit reduction in consumption leads to greater cost savings and the re-spending of those cost savings leads to a larger rebound effect” (Sorell et al., 2018). This indicates that putting a higher price on meat through taxes would possibly result in large rebound effects. In line with these findings, the European Commission acknowledges in their report on policies that encourage sustainable consumption that an analysis of the possibility of achievement and the repercussions of the rebound effect is needed to overcome the uncertainty that lies with implementing taxes based on the environmental performance of food products (2012). The European Commission acknowledges that there are questions and gaps in knowledge on assessing possible rebound effects and how policymakers should take the possible rebound effects into account (2012). A paper by Vivanco, Kemp, and van der Voet, on how to deal with the rebound effect initiated recommendations on this matter (2016). First of all, they advise policy design to consider the possible rebound effects and how to mitigate those effects. Second of all, they recommend policy mixes where all appropriate strategies will support the effectiveness. Following these recommendations, the European Commission also advises policy design and policy mixes as practical approaches to address the rebound effect (2012). However, the EC also acknowledges that measures to tackle indirect rebound effects are insufficient (2012). Nevertheless, in a report by the European Council for an Energy Efficient Economy, an indirect rebound effect, so the re-spending of cost savings by high taxation, can be mitigated if there was a carbon economy-wide pricing (Sorell et al., 2018). They state that “if the carbon pricing were economy-wide, since this would raise the price of all goods and services in proportion to their carbon intensity, and thereby lower the carbon intensity of expenditure (in tCO_{2e}/£) of those goods and services – and hence of re-spending.” (Sorell et al., 2018). In accordance, Vivanco et al., in their paper on how to deal with the rebound effect, agree that carbon-economy wide pricing is a useful tool to mitigate the possible rebound effects (2016). They state in their report that “whereas all policies have a role to play, economic instruments, such as carbon taxes and cap-and-trade systems, have the greatest potential to reduce rebound effects and avoid burden-shifting”.

In the light of promoting and facilitating the shift towards sustainable diets, a carbon tax on food might be the mitigation rebound (Loury, 2016).

To summarize, the findings demonstrate that multiple factors determine consumers' decision to consume more sustainably; therefore, it requires a multidisciplinary approach to promote and facilitate the transition towards sustainable food consumption patterns. Furthermore, the findings show clear recommended multidisciplinary initiatives for policy makers to promote and facilitate the transition. Using economic incentives is a prominent part of this multidisciplinary approach. In particular, the Bonus-Malus System case indicates that price signal, thus making sustainable products cheaper than unsustainable products, is a useful tool in promoting and facilitating the shift towards sustainable consumption. Although numerous studies show how economic incentives have effectively promoted sustainable consumption, using taxation to encourage sustainable consumption can burden low-income households in the short term. However, this repercussion can be mitigated through assistance and progressively graduated prices. Furthermore, using taxation to promote sustainable consumption will not cause a positive spill over and can cause indirect rebound effects, which can hinder the process of creating sustainable consumption patterns in other areas. However, indirect rebound effects can be mitigated through policy design, policy mixes and carbon economy-wide pricing.

Results

The results section of this dissertation reports the findings related to the research themes. Firstly, chapter 1 will represent the findings of the in-depth examination of the meat tax case. Specifically, chapter 1 will represent the findings related to meat consumption, policies to reduce meat consumption, and taxation and meat consumption. Secondly, chapter 2 will represent the findings of the in-depth examination of the tobacco tax case. Chapter 2 will examine tobacco consumption, policies to reduce tobacco consumption, and taxation and tobacco consumption.

Chapter 1 Meat tax case examined in-depth

1.A Meat consumption

As already briefly clarified in this dissertation's introduction, meat production and meat consumption have many negative externalities. First of all, industrial livestock production harms the environment. For example, nitrogen fertilisers that are used for crop production and ultimately to feed the livestock cause nitrogen to excess and damage biodiversity, ecosystems, the greenhouse balance, and water, air, and soil quality (Sutton et al., 2011). Furthermore, high-intensity agriculture is the main factor of soil biodiversity loss in Europe (European Commission, 2013). Moreover, agriculture, which uses 70% of water withdrawals worldwide, causes water pollution because the toxic elements of fertilisers and chemicals end up in water bodies (Food and Agriculture Organization, FAO, 2018). Also, the livestock sector has the highest impact on biodiversity loss (FAO, 2019). Likewise, Imported soymeal to the EU to feed the livestock sector causes deforestation, biodiversity loss and a release of stored carbon into the air in third countries (Compassion in World Farming, CIWF, 2017). It is estimated that the global livestock sector causes 14,5 percent of all greenhouse gas emissions (Gerber et al., FAO, 2013). Second of all, consumption of red and processed meat harms human health. It increases the risk of diabetes type 2, colorectal cancer and lung cancer (National Institute for Public Health and the Environment, 2020). Other factors caused by intensive agriculture and are harmful to human health are antibiotic-resistant bacteria, air pollution, exposure to agrochemicals, and foodborne diseases like *Campylobacter* and *Salmonella* (CIWF, 2017). To get back to the point, industrial livestock production harms the environment and human health. Besides, it also harms the economy because if all external costs were calculated for the EU's agricultural sector, it would be around €168.69 billion per year (excluding biodiversity loss, climate change, obesity, diabetes and certain cancers) (CIWF, 2016). To sum up, industrial livestock production harms public health and the environment, which in turn causes

governmental costs. Compassion in World Farming concluded that the negative externalities of industrial livestock production partly arise from the high levels of meat consumption worldwide (2016). The consumption of red meat that entails beef, pig meat, lamb, and goat meat exceeds recommendations in Europe (EC, 2020). More importantly, without any action, meat consumption is not expected to decrease anytime soon. The FAO expects that global meat consumption will continue to rise to 73 percent by 2050 (2011). Also, in the Netherlands meat consumption exceeds recommendations and is expected to increase. Wageningen University and Research(n.d.) observed a significant increase in meat consumption in the Netherlands between 2018 and 2019 and presume it will rise due to a growing population and increased welfare. In the Netherlands, the people who consume the most meat are from low-income households (National Institute for Public Health and Environment, 2020). Because meat consumption has negative externalities on public health and the environment and continues to increase worldwide, there is a wide known recognition that a reduction in meat consumption is required as part of a sustainable and healthy diet. A report of the EAT-Lancet Commission declares that a transformation to healthy diets as part of a sustainable food system is necessary to achieve the UN Sustainable Development Goals and the Paris Agreement by 2050 (Willett et al., 2019). The report acknowledges that a “transformation to healthy diets by 2050 will require substantial dietary shifts, including a greater than 50% reduction in global consumption of unhealthy foods, such as red meat and sugar, and a greater than 100% increase in consumption of healthy foods, such as nuts, fruits, vegetables, and legumes.” (Willett et al., 2019). Along with Bryngelsson et al. in a book on *How can the EU climate targets be met? A reduction in meat consumption by at least 50% or more would be of utmost importance in making sure the EU meets the climate targets on time* (2016).

To conclude, meat consumption has negative externalities on public health and the environment and is expected to rise. There is recognized that to eliminate the harmful effects of our current unsustainable food consumption patterns; we need to create sustainable, healthy diets. A reduction in meat consumption is an essential target in this transition. As was demonstrated in the literature review, making Europe’s food consumption more sustainable is achievable but requires changes in policies and knowledge. The next chapter will examine what the European Commission has proposed in the Farm to Fork Strategy to promote and facilitate the transition towards sustainable, healthy diets in Europe.

1.B Policies to reduce meat consumption

The EAT-Lancet Commission's report presented in the literature review provided to a certain extent the basis of the European Commission's recent Farm to Fork Strategy introduced on May 2020 with its intention to transition to a sustainable European food system by 2050. The Strategy's four key areas are Food Loss and Waste Prevention, Sustainable Food Production, Sustainable Food Processing and Distribution, and last but not least Sustainable Food Consumption (European Commission, EC, 2020). The policy initiatives set out under the key area of promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets are a harmonised mandatory front-of-pack nutrition labelling, a sustainable food labelling framework, minimum mandatory criteria for sustainable food procurement and origin indication. Furthermore, a review of the EU promotion programme for agricultural and food products, a review of the EU school scheme and tax incentives to make sustainable foods more affordable are the presented policy initiatives (EC, 2020). To promote policy coherence at the EU and national level, the EC plans to make a legislative proposal for a sustainable food system framework by 2023 (EC, 2020). The policy initiatives set under the Farm to Fork Strategy to promote and facilitate the shift towards sustainable healthy diets indicate again that a multidisciplinary approach is required, where awareness-raising and using tax incentives are prominent factors. The policy initiatives comply with the identified factors that influence the decisions for consumers to consume more sustainably. The literature review demonstrated that rising awareness and saving money were the main factors for consumers to reduce their meat intake. Even though the policy initiatives on facilitating the shift to healthy, sustainable diets of the EC are a step in the right direction, a few valuable evidence based policy initiatives demonstrated in the literature review were not included in the Farm to Fork Strategy. Valuable policy initiatives like creating European guidelines for healthy and sustainable diets, restricting the advertisement of unhealthy unsustainable foods, or ending the funding of unhealthy and unsustainable promotion campaigns were absent in the Farm to Fork Strategy. Consider the fact that the EU promoted European meat over the last three years with 71.5 million euros (Teffer, 2019). Despite the EC's acknowledgment that red meat consumption is unsustainable targeted initiatives for this were not proposed in the Farm to Fork Strategy. Sebastian Joy, a CEO at ProVeg International, added that "Without addressing our overproduction and overconsumption of animal products, we cannot even begin to hope to transform our food system. Meat and dairy reduction targets are essential if the Commission is to succeed in its food policy – without them, the plan to make Europe carbon neutral by 2050 will likely fail. This is a major missed opportunity, and we urge the Commission to reconsider its plans." (as cited in Vegconomist, 2020).

To summarize, the findings demonstrated above and demonstrated in the literature review indicate that promoting and facilitating the shift towards sustainable healthy diets requires a multidisciplinary approach. Where policy initiatives focused on awareness-raising and tax incentives are significant initiatives. This analysis is in line with the obtained data from the interview, where a policy coordinator of the European Public Health Alliance acknowledged that multiple components influence the decisions for consumers to consume sustainably. Therefore each component should be addressed (Appendix 1). Furthermore, the findings show that the EC's considered policy initiatives, which are represented in the Farm to Fork Strategy like food labelling or public procurement policies, provide a good starting point to promote and facilitate the shift towards sustainable, healthy diets in Europe. However, in terms of policy initiatives targeted at meat reduction like a meat tax, a marketing ban of meat or shifting subsidies away from livestock production is inadequate in the Farm to Fork Strategy. As shown in the interview, the European Commission has the opportunity to incorporate policy initiatives targeted at meat reduction in the upcoming EU legal framework for a sustainable food system (Appendix 1).

1.C Raising taxes on meat

Although the Farm to Fork Strategy has left out a few valuable policy initiatives to transition to sustainable, healthy diets in the EU and also left out targeted initiatives for the reduction of meat consumption in the EU, the Strategy does point out that "EU tax systems should also aim to ensure that the price of different foods reflects their real costs in terms of use of finite natural resources, pollution, GHG emissions and other environmental externalities." (EC, 2020). As a matter of fact, the FAO has stated in a report on the Natural Capital Impacts of Agriculture that in general unsustainable food is often cheaper than sustainable food (2015). Figure 2 clearly shows that the external costs of pork, beef and chicken are not presented in the supermarket price. For that reason the FAO has proposed in a report on the environmental problems and solutions for the livestock sector that all external costs should be included in prices through tax or fees (Steinfeld et al., 2006). A recent study by Odegard et al., commissioned by the True Animal Protein Price Coalition (TAPPC), calculated that if all external costs of meat production and consumption would be included in the price, "prices would increase by 47 euro cent per 100 gram beef/veal, 36 euro cent per 100 gram pork, and 17 euro cent per 100 gram chicken by 2030." (2020). Therefore, under the EC's policy initiative on aligning food prices with the real costs through tax systems, a meat tax, carbon tax, or ecotax on food should be considered by the European member states.

De vleesprijs in de supermarkt versus de 'echte' prijs van vlees

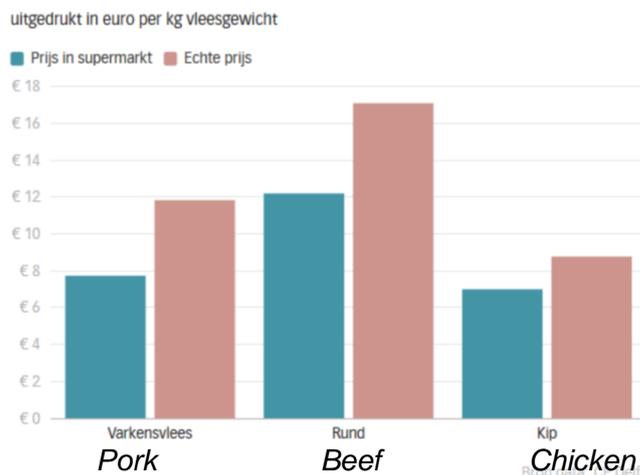


Figure 2: The supermarket price of meat (blue bar) versus the real price of meat (pink bar) in euros per kilogram. Acquired from a sustainability charge on meat by Odegard et al., 2020.

More importantly, putting a higher price on meat will reduce meat consumption. To elaborate, as was demonstrated in the literature review, implementing taxes based on the environmental performance of food products plays an essential role in encouraging sustainable food consumption. To further substantiate the causal relationship between a meat tax and a reduction in meat consumption, a study conducted for the American Journal of Public Health on *the Impact of Food Prices on Consumption* found that meat is one of the food categories that are most responsive to price changes (Andreyeva, Long, Brownell, 2010). Moreover, in a journal by Springmann et al., on the emissions pricing of food commodities, there was found that an increase of 40% in price for beef would lead to a decrease of 13% in consumption of beef (2016). In the study of Säll & Grenn on the effects of an environmental tax on meat and dairy consumption in Sweden, there was found that increasing the price of meat and dairy and therefore reducing consumption could reduce greenhouse gas emissions up to 12% (2015). The True Animal Protein Price Coalition (TAPPC) and CE Delft used the price elasticity data of meat to determine an ecotax's effect on the prices and sales of beef (2020). The calculation shows that a higher meat price causes meat sales to drop and will reduce greenhouse gas emissions by 3% in the EU (TAPPC, 2020). Figure 3 also shows that how higher the price of beef how more the sales of beef decline.

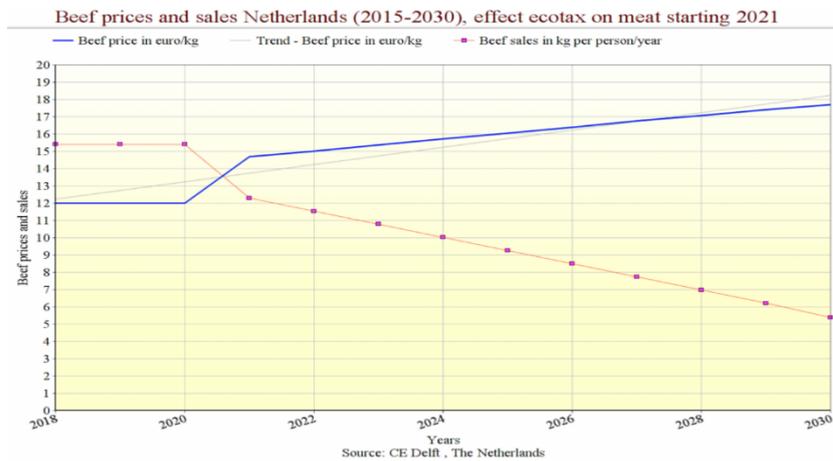


Figure 3: The effect of a ecotax on meat on the prices and sales of beef in the Netherlands between the period of 2015 and 2030. Acquired from *Aligning food pricing policies with the European Green Deal* by the True Animal Protein Price Coalition (TAPPC) and CE Delft, 2020.

The CE Delft report, commissioned by the TAPPC, on a sustainability charge on meat estimated that the revenues of such a charge would be around €32.2 billion per year across the EU Member States by 2030 (Odegard et al., 2020). Considering the support of Dutch consumers on paying a higher price for meat, the outcomes of a survey commissioned by the Dutch Union of vegetarians show that half of the Dutch consumers are willing to pay more for meat if the revenues will be invested in improving animal welfare, sustainable agriculture and acquiring a substantial income for sustainable farmers (Vegetariërsbond, 2020). Therefore, the TAPPC advocates in a discussion paper on aligning food pricing policies with the European Green Deal that the revenues will firstly be used “to help farmers invest in more sustainable agricultural practices” (2020). Secondly, the revenues can be used “to lower VAT and consumer subsidies on vegetables and fruits” (TAPPC, 2020). Thirdly, they can be used to “provide financial support for low-income households” (TAPPC, 2020). And lastly, the revenues can “support developing countries to adapt to climate change and protect forests” (TAPPC, 2020). The discussion paper on aligning food pricing policies with the European Green Deal also recommends the EU to implement a European harmonised meat tax to reduce market disturbances and prevent cross-border shopping (TAPPC, 2020). This recommendation is in accordance with the recommendations presented in the literature review on mitigating the repercussions of economic incentives. The possible consequences of taxation, identified in the literature review, are regressive effects on low-income households in the short term, no positive spill over to other sustainable consumption areas, and indirect rebound effects, where consumers will spend the cost savings on other unsustainable products or activities. Furthermore, the literature review found a lack of knowledge on the analysis and assessment of the repercussions of

using taxation to reduce consumption. The lack of knowledge on the analysis and assessment of the repercussions of using taxation to reduce consumption should be addressed. As demonstrated in the interview, without knowing the repercussions of each measure, it may do more harm than good in the long term (Appendix 1). However, the literature review established a few recommendations on how to mitigate the identified repercussions of taxation. First of all, the regressive effects on low-income households in the short term can be mitigated through financially supporting low-income households and gradually raising the prices. Second of all, the indirect rebound effects can be mitigated through policy design, where the possible rebound effects and ways to minimize those are assessed. Furthermore, policy mixes where the use of different strategies will support the effectiveness of the objective can be considered. Also, economy-wide pricing, such as a carbon tax or eco-tax, can be considered to minimize the indirect rebound effects of high taxation.

To summarize, on the findings of the in-depth examination of the meat tax case there can be concluded that a reduction of meat consumption is essential to eliminate the harmful impacts it has on the environment and human health and to create sustainable food consumption patterns. Therefore, meat reduction targets should be part of the Farm to Fork Strategy on promoting and facilitating the shift towards sustainable, healthy diets. The findings demonstrated above and in the literature review show that increasing the price of meat is an effective possible initiative to reduce meat consumption. With the acknowledgment of the EC in the Farm to Fork Strategy that food prices should reflect their real costs, policymakers have the opportunity to start considering CO₂ pricing, carbon pricing of food commodities, a sustainability charge, or a meat tax to reduce meat consumption. However, firstly, using economic incentives to reduce meat consumption should be part of a multidisciplinary approach. Other effective policies like promoting meat reduction programmes, implementing dietary guidelines, or a marketing ban on meat should be part of this multidisciplinary approach. Secondly, using taxation to reduce meat consumption can have regressive effects in the short term on low-income households and can result in indirect rebound effects. Financial support, gradually raising taxes, policy mixes, and economy-wide pricing were identified as possible ways to mitigate taxation's identified repercussions. However, further research is needed to analyse and assess the other possible repercussions of using taxation to reduce meat consumption and the possible ways to mitigate these repercussions. Furthermore, the calculated revenues of putting a higher price on meat are estimated at around €32 billion per year across member states. The revenues should be spent on the concerning activities that support the objective, namely the transition to a sustainable food system in the EU. For example, the revenues

should be spent making fruit and vegetables cheaper, supporting farmers who transition to more sustainable agricultural practices, or financially supporting low-income households.

Chapter 2 Tobacco tax case examined in-depth

2.A Tobacco consumption

Tobacco is a non-food product that is highly addictive (World Health Organization, WHO, 2020). It is widely known that tobacco consumption harms human health. To illustrate, tobacco consumption causes cancer, heart disease, stroke, lung diseases, diabetes and chronic obstructive pulmonary disease (COPD) (Centers for Disease Control and Prevention, 2020). Furthermore, it increases the risks of tuberculosis, eye diseases, problems of the immune system and erectile dysfunction in males (Centers for Disease Control and Prevention, 2020). All these negative effects of tobacco consumption on human health cause more than 8 million deaths per year, with 1.2 million deaths resulting from second-hand smoking (WHO, 2020). As for the Netherlands, tobacco smoking causes 20.000 deaths annually (Government of the Netherlands, 2018). Besides all the negative effects on human health, direct tobacco consumption costs the Dutch Government an amount of 2.4 Miljard euros a year in health care costs (Government of the Netherlands, 2018). Furthermore, tobacco consumption not only has health and cost-related effects but is also harmful to the environment. The thrown-away cigarette butts turn into toxic plastic pollution and are the most wasted items worldwide (Root, 2019). Because tobacco consumption has negative health and environmental externalities, the World Health Organization recognizes that tobacco consumption is an epidemic and one of the biggest threats to public health (WHO, 2020). A reduction in tobacco consumption is needed to eliminate the harmful effects on public health and the environment. Therefore, the next paragraph gathers and assesses effective policies to reduce tobacco consumption.

2.B Policies to reduce tobacco consumption

Both on national as international levels, responses to the global tobacco epidemic have been developed with the successful result of reducing tobacco consumption. On the international level, the World Health Organization introduced the WHO Framework Convention on Tobacco Control (FCTC) on 27 February 2005, which is the first global public health treaty (WHO, n.d., a). It was introduced to provide an internationally coordinated response to the tobacco epidemic and provide clear measures for national countries to reduce the demand for tobacco and reduce tobacco supply (WHO, n.d., a). When reducing the demand for tobacco, there are many effective tobacco control policies and programmes; however, a few are most effective in reducing tobacco demand. Thus, to assist national

countries better in implementing the FCTC, the World Health Organization introduced the MPOWER measures in 2008 (WHO, 2013). The MPOWER measures outline the six most effective tobacco control policies and programmes on the demand side (WHO, 2013). The most effective tobacco control policies and programmes include monitoring tobacco consumption and policies that prevent tobacco use, protecting people from second-hand smoke through smoke-free policies and offering help to quit tobacco. Furthermore, it includes warning about the dangers of tobacco, enforcing bans on tobacco advertising, promotion and sponsorship, and raising taxes on tobacco (WHO, 2013). Each MPOWER measure is a valuable evidence-based tool to reduce tobacco consumption because they directly target the key factors that make smokers quit. This statement is in line with the findings of the Central Bureau for Statistics in the Netherlands, which found that the main reasons for smokers to quit smoking were because of health concerns, because of advice from healthcare providers, because of advice and understanding from family members and friends, because of cheap or free medication and because of price increases in tobacco products (CBS, 2017). The findings of the CBS and the six advised measures by the WHO indicate that to reduce tobacco consumption a multidisciplinary approach is required, where awareness-raising, offering support and raising the prices of tobacco products are prominent determinants that encourage smokers to quit smoking. Furthermore, the FCTC and the MPOWER measures of the WHO have shown to be successful in promoting national governments to adopt and implement tobacco control policies and programmes (WHO, 2017). At the moment 182 parties have joined the FCTC and 121 of these countries started to adopt and implement at least one of the MPOWER measures at the maximum level (WHO, 2017). Although the FCTC has shown to be successful in encouraging national governments to tackle the global tobacco epidemic, it is debatable whether it is also the drive behind the decrease in global smoking due to the varied implementation of tobacco control policies and programmes across countries. Although Figure 4 shows that between 2007 and 2015, there has been a significant decrease in adult smoking globally, Hoffman, Poirier, Van Katwyk, Baral, and Sritharan claim that the adoption of the WHO FCTC in 2005 is not the driver behind the decrease in global tobacco consumption (2019). Their report on the impact of the WHO FCTC on global cigarette consumption claims that the extent to which countries implement tobacco control policies and programmes varies significantly across countries. The diversity among countries causes the tobacco industry to move its lobbying, marketing and promotion away from countries with the most tobacco control policies and programmes towards the countries with the least (2019). This claim is in line with Dr. Geoffrey Fong's statement, who is the Founder and Chief Principal Investigator of the International Tobacco Control Policy Evaluation Project. He states that strong implementation of all MPOWER measures at the highest level is key in reducing tobacco

consumption (The Lancet, 2017). This is not the case at the moment because only two countries, of the total of 182 joined countries, adopted and implemented all six MPOWER measures at the highest level (WHO, 2020). Dr. Geoffrey Fong states that “the WHO-FCTC has been a success in reducing tobacco use in countries that engaged in strong implementation and saw their smoking rates decline – at a level much greater than those countries that did not.”(The Lancet, 2017). The findings demonstrate that the FCTC and MPOWER measures have encouraged national countries to implement tobacco control policies and programmes but the lack of a multidisciplinary approach in national countries, where all six MPOWER measures are implemented, causes to reduce national and global tobacco consumption less efficiently. In other words, if all joined countries would adopt and implement all the six MPOWER measures at the highest level possible, it would be much more effective to reduce global consumption.

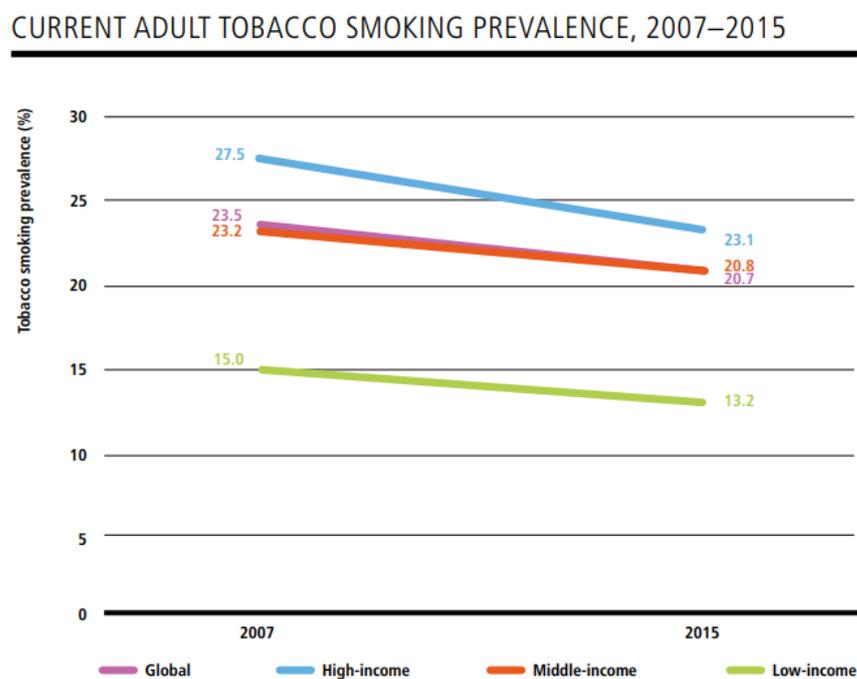


Figure 4: Current Adult Tobacco Smoking Prevalence, 2007-2015. Acquired from the WHO report on the global tobacco epidemic by the World Health Organization (2017).

The Netherlands' case is an excellent example of how the strong implementation of tobacco control policies and programmes can significantly decline smoking rates. Before joining the WHO FCTC on January 27, 2005, the Netherlands had already adopted and implemented, to a certain extent, smoking bans in public places and an advertising and promotion ban (International Tobacco Control Policy Evaluation Project, ITC, 2021). However, after joining the WHO FCTC in 2005, the Netherlands extended and added several tobacco control policies and programmes between 2005 and 2019. These included smoking bans, tax

increases on tobacco products, and mass media campaigns to encourage quitting smoking and denormalizing smoking among youth. They also included the reimbursement of smoking cessation treatments, increasing the legal age to buy tobacco, putting text and pictorial health warnings on tobacco products and a flavoured tobacco ban (ITC, 2021). For the upcoming years, the Netherlands has on the agenda to implement even more tobacco control policies and programmes at a higher level (ITC, 2021). Although the Netherlands was neither last nor first in adopting and implementing tobacco control policies and programmes compared to other EU countries, it has successfully decreased tobacco consumption in the Netherlands (Willemsen, 2018). Figure 5 shows that smoking rates among adults in the Netherlands between 2014 and 2019 have significantly reduced. Therefore, it can be concluded that the FCTC and MPOWER measures encouraged the Netherlands to implement tobacco control policies and programmes and that the engagement of the Netherlands in the implementation of strong tobacco control policies and programmes resulted in a significant reduction of tobacco consumption.

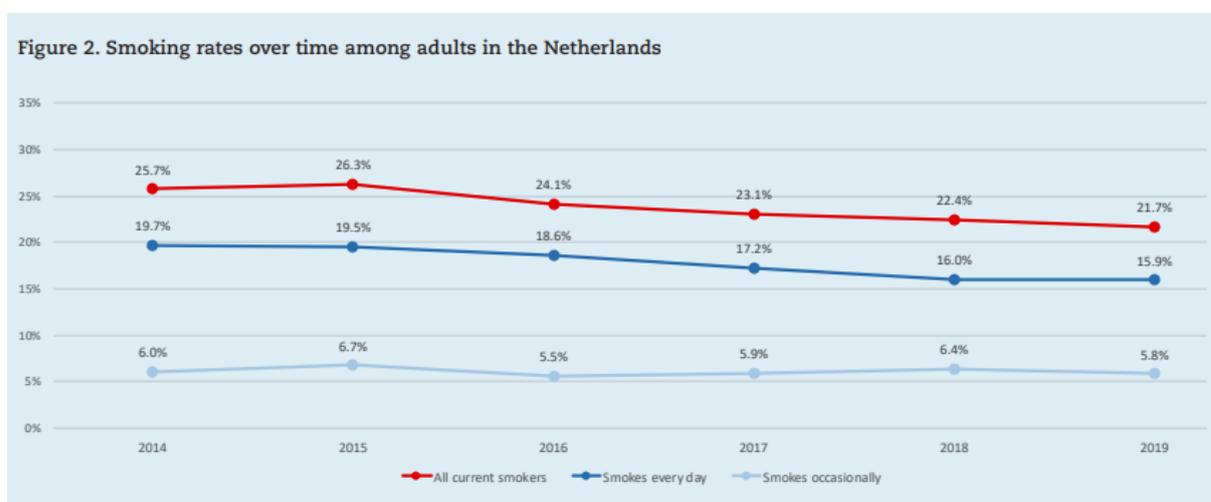


Figure 5: Smoking rates over time among adults in the Netherlands between the period of 2014 and 2019. Aquired from Smoking in the Netherlands: key statistics for 2019 (p.3) by Bommele, Walters and Willemsen, 2020.

2.C Raising taxes on tobacco

Because this dissertation examines the relationship between taxation and a reduction in consumption, chapter 2.C will further examine the relationship between tobacco taxation and tobacco consumption. Initially, raising taxes on tobacco products is the last advised MPOWER measure of the World Health Organization to reduce tobacco consumption; however, it is not the least important. Studies show that increasing the price of tobacco

products is an effective tool to reduce tobacco consumption. Gallet and List found that the demand for tobacco products is inelastic with an average of $-0,48$, which indicates that a price increase of tobacco products by 10% would reduce demand with 4.8% (2003). However, because smoking is addictive, the demand for tobacco products is in the short term less inelastic than in the long term (Gallet and List, 2003). Furthermore, Chaloupka, Yurekli and Fong also found that increases in tobacco taxes are a highly effective strategy to reduce tobacco use (2012). Besides, low-income groups are more likely to reduce their tobacco use due to tobacco price increases compared to high-income groups (Tobacco Control Legal Consortium, 2012). In the Netherlands, low-income groups are the group with the highest smoking rates, which means that raising taxes to reduce tobacco use is a very effective measure because it directly targets the group with the highest smoking rates (Bommele, Walters, Willemsen, 2020). Furthermore, from the smokers' perspective, higher cigarette prices made most smokers in high-income countries consider quitting smoking (ITC, 2014). Therefore, in theory, putting a higher price on tobacco has been demonstrated to reduce tobacco consumption. Moreover, the WHO declares it even as the most cost-effective tobacco control measure to reduce tobacco consumption. Nonetheless, it stays the single most absent MPOWER measure across the joined countries of the WHO FCTC. The World Health Organization acknowledges this both by stating that "while increasing tobacco taxes to an adequate level is the most effective measure to reduce use, only 10% of the world's population is covered by such a tax – the lowest adoption rate of any MPOWER policy" (WHO, 2017). Although the Netherlands started to gradually raise taxes on tobacco products, the taxes are still not raised to the WHO's advised minimum. Figure 6, acquired from the Central Bureau for Statistics (2020), shows that the price of tobacco has significantly increased compared to other consumer goods in the Netherlands.



Figure 6: Rise in price of tobacco(light blue line) and other consumption goods(dark blue line) between the period of 2000 and 2020 in the Netherlands. Acquired from the Central Bureau for Statistics (CBS) (2020).

Furthermore, the Central Bureau for Statistics (CBS) reports that since July 2000 the price of tobacco products has tripled (2020) in the Netherlands. Nevertheless, the WHO advises a minimum of 70% of Retail Price in Excise Tax to effectively reduce use while the Netherlands has now a 54.46% of Retail Price is Excise Tax (The tobacco atlas, n.d) Additionally, in practice raising taxes on tobacco to reduce tobacco consumption can have repercussions. Both opponents and proponents of a tobacco tax have made predictions on the effects of raising taxes on tobacco. First of all, the opponents of a tobacco tax claim that making tobacco more expensive has a regressive effect on low-income households (Tobacco Control Legal Consortium, 2012). In contrast, proponents claim that this economic injustice can be counteracted because a tax has a progressive effect on tobacco usage and therefore benefits public health and leads to greater government revenues in the long term (Tobacco Control Legal Consortium, 2012). Thus, the World Health Organization suggests that the tobacco tax revenues should be spent on other comprehensive tobacco control programmes to optimize results and support low-income households (n.d., b). Second of all, putting a higher price on tobacco products and the differentiated tobacco prices among neighbouring countries can result in adverse effects. In a study by Van der Hauw, Te Peele, Kranenborg & Verhoeven there was claimed that repercussions of tobacco taxation may be that smokers buy tobacco products in a neighbouring country where tobacco is not taxed as high, or they start buying cheaper tobacco products (2002). This is in line with a conducted study in France of the International Tobacco Control Policy Evaluation Project, which found that “24% of French smokers in provinces bordering countries with lower prices frequently bought their cigarettes in those countries: indicates need for price harmonization”(2014). In accordance with these findings, Willemsen and Croes emphasize that to mitigate this adverse effect, neighbouring countries should consider aligning tobacco prices with each other(2020). Willemsen and Croes also found that besides the adverse effects of buying cheaper tobacco products or buying tobacco products in a foreign country, taxing tobacco may also result in illicit tobacco trade (2020). Willemsen and Croes suggest that the evaluation of these possible adverse effects of tobacco taxation should be further analysed (2020).

To summarize, on the findings of the in-depth examination of the tobacco tax case, there can be concluded that raising the price of tobacco products through taxes is an effective measure to reduce tobacco consumption. A reduction in tobacco consumption will eliminate the harmful impacts tobacco consumption has on public health and the environment and will increase government revenues. However, the findings also demonstrate that implementing a tobacco tax to reduce tobacco consumption should be part of a multidisciplinary approach. The FCTC and the WHO's six MPOWER measures are a well-

founded guidance for national countries to address the tobacco epidemic through a multidisciplinary approach. Nevertheless, the findings demonstrate that most joined countries are inadequate in implementing a strong multidisciplinary approach to reduce tobacco consumption. Besides, in practice, tobacco taxation may lead to multiple repercussions like regressive effects on low-income households, cross-border shopping, illicit tobacco trade and the consumption of cheaper tobacco products.

Analysis

The analysis chapter of this dissertation will consist of analysing the collected data in the previous chapters. This dissertation aimed to substantiate the implementation of a meat tax to reduce meat consumption in the Netherlands. A comparative case study was used to produce generalized knowledge about the causal relationship between taxation and a reduction in consumption and to generate insights on how to reduce consumption and why taxation contributes to this transition. For the comparative case study, the tobacco tax case was used. Therefore, this dissertation's research question is how the tobacco tax case can justify the implementation of a meat tax to reduce meat consumption in the Netherlands. The sub-research questions were what are the differences, similarities and patterns between the tobacco tax case and the meat tax case. Therefore, the analysis chapter will analyse the similarities, patterns and differences between the tobacco tax case and the meat tax case categorized by a theme-based structure. The themes identified in the previous chapters are the objective and approach, taxation and consumption and the repercussions of taxation. This dissertation collected primary qualitative data through an interview. Secondary quantitative and qualitative data were collected through academic journals, books, reports, websites, articles, statistics, and newspapers and were accessed through the internet and The Hague University and Royal Library databases.

The objective and approach

The previous chapters' findings validate that the objective and approach of the two examined cases are parallel to one another. To begin with the tobacco tax case, tobacco is a non-food, highly addictive product, and the World Health Organization's advised measures, which are demonstrated in Chapter 2.B, aim to reduce tobacco consumption. The main reasons smokers quit smoking shown in Chapter 2.B indicate that rising awareness and price increases played a significant role in this process. Hence, the WHO's advised measures to reduce tobacco consumption are mainly focused on public awareness and price, for instance, warning about the dangers of tobacco and enforcing bans on tobacco advertising, promotion, and sponsorship. And most notably, in the light of this research, raising the price of tobacco products through the implementation of taxes. Furthermore, Chapter 2.B demonstrated that the WHO's advised measures to reduce tobacco consumption on the demand side are a multidisciplinary approach. The national countries that engaged in the strong implementation of the WHO's recommended multidisciplinary approach, like the Netherlands, reduced tobacco consumption more efficiently than the countries that lacked in using the multidisciplinary approach to reduce

tobacco consumption. This indicates that using a multidisciplinary approach is not only advised; it is also required to reduce tobacco consumption more efficiently.

Similar findings occurred during the examination of the meat tax case. Although meat is a food product and is not considered highly addictive, Chapter 1.B demonstrated, as likewise in the tobacco tax case, that awareness and price are prominent factors for consumers to reduce their intake of meat. Even though reducing meat consumption is part of a bigger objective, namely a transition towards sustainable, healthy diets the potential measures to facilitate this transition are parallel with the tobacco tax case measures. As was demonstrated in Chapter 1.B, the advised measures were also mainly focused on public awareness, for instance, informational campaigns, social movements, national dietary guidelines and restricting the advertising and marketing of unhealthy and unsustainable foods. They were also focused on price increases, namely adding the external costs of food in the price through the implementation of taxes. Furthermore, Chapter 1.B demonstrated that the European Commission's policy initiatives to promote and facilitate the transition towards sustainable, healthy diets are a multidisciplinary approach. As similar to the tobacco tax case, a multidisciplinary approach is required to encourage and facilitate the transition towards sustainable, healthy diets more efficiently. This analysis is in line with the conducted interview where a policy coordinator of the European Public Health Alliance acknowledged that only having one approach is not the best strategy because the decisions of consumers to start consuming more sustainably are formed by many factors (Appendix 1). As mentioned earlier, reducing meat consumption is part of a bigger objective, where the other targets are important as well like a reduction of unhealthy unsustainable foods and an increase in healthy sustainable foods. This indicates that there are multiple targets at stake and that the need for a multidisciplinary approach for each target is probably even greater than in the tobacco tax case. Together, these findings demonstrate two similarities between the tobacco tax case and the meat tax case. First, the general objective is to reduce consumption. Second, to reduce consumption, a multidisciplinary approach is required.

Taxation and consumption

As has been mentioned, in both cases raising the price through taxes is part of the multidisciplinary approach to reduce consumption. First, the tobacco tax case findings of Chapter 2.C demonstrate that a higher price on tobacco is an effective evidence-based measure to reduce tobacco consumption. Studies have shown that tobacco is responsive to price changes, with a 10% increase in the price of tobacco products, a 4.8% decrease in

demand is the result. This implies that putting a higher price on tobacco products is associated with a reduction in tobacco consumption. To examine it in practice, Figure 6 of Chapter 2.C shows that the Netherlands started gradually raising taxes on tobacco products between 2005 and 2020. As the data shows in Chapter 2.B, smoking rates in the Netherlands decreased. This suggests that raising taxes on tobacco products in the Netherlands has successfully caused a decrease in smoking rates. However, the case presents some limitations, such as the fact that the Netherlands implemented other evidence-based tobacco control policies and programmes during the same period and that it has not raised taxes on tobacco at the maximum possible level that the WHO advises. Furthermore, raising taxes on tobacco is the least implemented measure by national countries to reduce tobacco consumption, even though the World Health Organization acknowledges it as the most effective. The next paragraph on the repercussions of taxation will elaborate on this matter. Compared with the meat tax case, a similar effect of taxation on consumption was examined. The findings of Chapter 1.C demonstrate that putting a higher price on meat reduces meat consumption. More importantly, the findings indicate that meat is even more responsive to price changes than tobacco. A study shows that increasing the price of beef by 40% results in a decrease of 13% in consumption. This indicates that putting a higher price on meat will lead to a more significant reduction in consumption than for tobacco and therefore is a more prominent measure in reducing meat consumption when compared to the tobacco tax. However, the case presents some limitations, such as the fact that the effects of a meat tax have not been examined in practice yet. As well as whether it should be an eco-tax, carbon tax, a sustainability charge or a meat tax should be further examined. In conclusion, the identified similarity between the two cases is the causal relationship because the analysis demonstrates that in both cases raising the price is an effective evidence-based measure to reduce consumption.

The repercussions of taxation on low-income households

In the tobacco tax case and the meat tax case, similar patterns of repercussions were identified that might be one reason why in the tobacco tax case, taxation is the least implemented measure by national countries. First of all, in Chapter 2.C of the examined tobacco tax case, there was demonstrated that the group with the highest smoking rates in the Netherlands are low-income groups. It is interesting to note that this might be one reason why taxation, in this case, is a very effective measure because it directly targets the ones at stake. However, the opponents of a tobacco tax claim that this economic injustice will burden low-income households. Although this might be true in the short term, Chapter

2.A demonstrated that in the long term, it would be counterbalanced due to an increase in public health and government revenues. However, to mitigate these regressive effects on low-income households in the short term, Chapter 2.C demonstrates that low-income households should be financially supported. A similar repercussion and proposed recommendation were identified in the meat tax case. Chapter 1.A demonstrated that the group which consumes the most meat are low-income groups therefore, taxation will directly target the ones at stake. However, a tax on meat might place a burden on low-income households in the short term. Still, in a like manner, as Chapter 1.C demonstrated, it will eliminate the harmful impacts on public health and the environment and increase government revenues. However, to mitigate these regressive effects on low-income households in the short term, financial support and gradually raising prices were recommended in Chapter 1.C. Given these points, the repercussions of taxation on low-income households might indicate why policymakers hesitate to use it. This analysis is in line with the obtained data from the interview. According to a policy coordinator at the European Public Health Alliance, taxation of meat raises doubts among policymakers regarding the impact it may have on socioeconomics and the production system (Appendix 1).

The repercussions of taxation on other objectives

Second of all, other similar patterns of the repercussions of taxation, which were identified across both cases, show that the repercussions can hinder achieving the objectives of reducing global meat consumption and creating sustainable consumption patterns in other areas. First of all, the tobacco tax case demonstrated the present variety among countries in adopting measures aimed at reducing tobacco consumption. This pattern resulted in the tobacco industry moving its activities to countries with the least adopted measures and resulted in cross-border shopping and illicit tobacco trade. These findings indicate that reducing tobacco consumption is a transnational issue. In Chapter 2.C, there was recommended that to prevent cross-border shopping neighbouring countries should consider aligning tobacco prices with each other. However, Chapter 2.C recognizes that the analysis and assessment of the possible repercussions of tobacco taxation should be further analysed. Similar repercussions and recommendations were identified in the meat tax case. Chapter 1.C demonstrated that using taxation to reduce meat consumption will not lead to a positive spill over to other sustainable consumption patterns and can cause cross-border shopping and indirect rebound effects. Indirect rebound effects occur when high taxation leads to a reduction in consumption and results in cost savings. Consumers then spend these cost savings on other unsustainable products and services. This will

hinder the process of creating sustainable consumption patterns in other areas. Chapter 1.C demonstrated that policy mixes, where the use of different strategies will support the objective's effectiveness, can be considered to minimize the indirect rebound effects. Also, economy-wide pricing, such as a carbon tax or eco-tax, can be considered to mitigate the indirect rebound effects of high taxation because it will raise the price of all goods and services that are deemed unsustainable. However, Chapter 1.C recommended further research to analyse and assess the other possible repercussions and the possible ways to mitigate these repercussions.

By comparing the two cases based on their similarities, differences and patterns, there can be concluded that the tobacco tax case sets an excellent example for the implementation of a meat tax. It demonstrates how a multidisciplinary approach, where taxation plays a prominent part, can effectively reduce consumption in theory. Furthermore, the tobacco tax case produced generalized insights on the possible repercussions of taxation. In practice, using taxation to reduce consumption can have regressive effects on low-income households, cause cross-border shopping, illicit trade, and indirect rebound effects. Furthermore, in both cases, a lack of analysis of the possible repercussions and ways to mitigate these were identified.

Conclusion

By comparing the tobacco tax case and the meat tax case, this dissertation has tried to demonstrate how the tobacco tax case can function as an example for implementing a meat tax in the Netherlands. This dissertation aimed to substantiate the implementation of a meat tax to reduce meat consumption in the Netherlands. The chosen method to answer the research question was a comparative case study, where the case study of the tobacco tax was chosen because they share the same variables. For the comparative case study, the differences, similarities and patterns between the tobacco tax case and the meat tax case were analysed. The method was beneficial in producing generalized knowledge and insights on the causal relationship between taxation and a reduction in consumption. The method produced expected insights on this matter. Based on the quantitative and qualitative analysis of the similarities between the tobacco tax case and the meat tax case, it can be concluded that the two cases are parallel to another based on their objective, their approach and their causal relationship between taxation and a reduction in consumption. The results indicate that a reduction in meat consumption is indispensable to create sustainable food consumption in Europe. In theory, increasing the price of meat will be an effective measure to reduce meat consumption in the Netherlands. Based on the quantitative analysis of the differences between the tobacco tax case and the meat tax case, it can be concluded that meat is more price-sensitive than tobacco, which indicates that the meat tax results in a greater reduction in consumption than the tobacco tax. However, the comparative case study also produced unexpected insights regarding the knowledge on how to reduce consumption and to use taxation as a measure to reduce consumption:

1. Based on the quantitative and qualitative analysis of the similarities between the tobacco tax case and the meat tax case, it can be concluded that multiple measures influence consumption patterns. The results indicate that implementing a multidisciplinary approach to reduce meat consumption in the Netherlands is required in practice.
2. Based on the quantitative and qualitative analysis of the patterns between the tobacco tax case and the meat tax case, it can be concluded that in practice, taxation will have a regressive effect on Dutch low-income households in the short term. Nonetheless, it will allocate revenues and eliminate the harmful impact on public health and the environment in the long term.

3. Based on the quantitative and qualitative analysis of the patterns between the tobacco tax case and the meat tax case, it can be concluded that using taxation as a measure to reduce meat consumption can hinder the process of creating sustainable consumption patterns in other areas in the Netherlands. The results indicate that using a meat tax to reduce meat consumption will not cause a positive spill over to other sustainable consumption areas and can cause cross-border shopping, illicit trade and indirect rebound effects.

This dissertation concludes by arguing that, in theory, a meat tax will reduce meat consumption in the Netherlands. But, in practice, without any action, cross-border shopping, illicit trade, and indirect rebound effects resulting from a meat tax can hinder the process of achieving the objectives of reducing global meat consumption and creating sustainable consumption patterns in other areas.

Recommendations

This dissertation's findings confirm that reducing meat consumption in the Netherlands is an essential target to create healthy and sustainable diets in the Netherlands. Therefore, policymakers in the Netherlands should consider implementing targeted initiatives for reducing meat consumption. Dutch policymakers should consider implementing a multidisciplinary approach, like in the tobacco tax case, to reduce meat consumption, where initiatives like a marketing ban of meat, national dietary guidelines, promotion of meat reduction programmes, and raising the price of meat are part of this multidisciplinary approach. With the acknowledgment of the EC in the Farm to Fork Strategy that food prices should reflect their real costs, policymakers in EU member states have the opportunity to start considering the carbon pricing of food commodities, a meat sustainability charge, or a meat tax. Because this dissertation identified a lack of analysis of the possible repercussions of using taxation to reduce consumption, further analysis of the potential repercussions of taxation and ways to mitigate these repercussions is essential to overcome uncertainties on the possibility of achievement. However, this dissertation identified some recommendations to mitigate the repercussions. First of all, to minimize the regressive effect on low-income households, Dutch policymakers should consider providing financial assistance for low-income households and progressively graduated prices. The government revenues resulting from the reduction of meat consumption due to a raising price should be spent on other policy initiatives that support the European objective, namely the transition to a sustainable food system in the EU. For example, the revenues should be spent making fruit and vegetables cheaper, supporting farmers who transition to more sustainable agricultural practices, or financially supporting low-income households. Second, to mitigate indirect rebound effects, Dutch policymakers should consider policy mixes and economy-wide pricing. The possible cross-border shopping and illicit trade resulting from raising the price of meat in the Netherlands demonstrates a transnational issue. This indicates that other national countries and the European Union should also take the lead in reducing meat consumption in Europe and promoting policy coherence among EU member states. In the upcoming EU legal framework for a sustainable food system, the European Commission should consider including a meat reduction target. Policy initiatives like EU dietary guidelines on sustainable, healthy foods, promotion of EU meat reduction programmes, shifting EU subsidies away from polluting animal farms, and restricting digital marketing of unsustainable, unhealthy foods should be considered as effective policy initiatives to reduce meat consumption in Europe.

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Appendices

Appendix 1

Interviewer: Julia Francken (JF)

Interviewee: Policy coordinator at the European Public Health Alliance

Date and time: 16-12-2020 at 12:00

JF: What is your opinion on whether the measures implemented to reduce tobacco consumption, for example, a ban on advertising or raising taxes, can be a guide to reduce consumption of unsustainable and unhealthy foods like meat?

Interviewee: I think that the tobacco case is a very good example of how a range of policies like marketing, labelling, availability etc. are very effective in changing the environment in which people make choices about whether or not to buy certain items. The effectiveness of these measures is consistent and can be applied as well to alcohol and food. I think that the measures implemented to reduce tobacco consumption are parallel with reducing the consumption of unsustainable, unhealthy foods.

JF: Do you think that the currently proposed measures in the F2F Strategy on facilitating the shift towards sustainable, healthy diets are sufficient enough, or do you think that some effective measures are absent and should be included in the F2F Strategy?

Interviewee: The Farm to Fork strategy is by far the most comprehensive thing the European Commission has come out with ever. It is far better what national countries have done on this topic. In some countries, there is not even any recognition. There is a lot right in the Farm to Fork strategy regarding how things are presented, like the recognition that current consumption patterns are unsustainable. But if you look at what is proposed in terms of measures, it is a bit disappointing. I would say what is needed for change but not in the point of view of, let's say, political realism. So mainly, we are not so happy that most of the measures are targeted at the demand side, like labelling and the expectation of political commitment by industries. These measures can be useful, but they are a minor component. It is never something to rely on eventually. It is not enough to change the structure of the food environment. Therefore, from that point of view, no, it is not enough. The EU legal framework for a 'sustainable food system' expected in 2023 offers an opportunity to fill in those gaps with more clear legal directives. In terms of additional measures, we would like to see a clear variety of marketing of healthy and sustainable products through digital and broadcast media. Because it is an entirely EU competence, it can be applied at the EU

level. However, the EU has no competence in taxation, however, it can make some frameworks in this regard. We are not sure whether it should be applied and how it should be applied. We do recognize that it will probably be effective, but there are other questions like what is the socio-economic impact, the palatability, and what it would mean for the production system. We want a more detailed analysis of what sort of tax and which part of the supply chain it would be, and what repercussions it may have.

JF: But could the taxation of tobacco substantiate the taxation of meat?

Interviewee: It is a good parallel in showing that it will likely work. But tobacco is not the same product as meat. For tobacco, it is clear that there is no minimum consumption of it that is good for you and with meat that differs.

JF: Do you think that only one measure will be most effective in this transition or that it is a combination of multiple measures?

Interviewee: It has to be a combination of measures. When you look at the tobacco case, taxation is the single most effective measure. However, it does not mean that if you only use taxation that it will change everything. The whole food environment shows that the decisions of consumers are shaped by many components like availability, accessibility and what is made attractive to use through marketing. Considering all these influences, you cannot expect that adapting to one of these influences everything will change. It means that it needs a comprehensive approach, but you need to start already with individual measures. We need to be clear what the repercussions are of each measure because otherwise, you may end up doing more harm than good.

JF: What is your opinion about the fact that the F2F Strategy does not include any specific meat reduction targets?

Interviewee: We would be in favour of that, but we do not think it will be included. It is not at the same level as the approach of pesticides in the EU, for example. Because meat reduction targets were not included in the Farm to Fork Strategy, they can include it in the sustainable regulatory framework, but we doubt they will.

JF: What is your opinion on harmonising the measures at EU level to more effectively facilitate the shift towards sustainable, healthy diets?

Interviewee: It depends on the measure. Some measures can be better implemented at the national level or EU level. Digital marketing is something for the EU, but for public procurement measures the EU can only establish a directive for national countries. Taxation as well, they could make a framework or guidance for national governments, but EU-wide tax of meat probably cannot be arranged.

JF: What do you think about bans on advertising of unsustainable and unhealthy food? Can that be implemented at the EU level?

Interviewee: It would be effective; however it does not have transborder elements, so national countries need to legislate this measure. However, in digital marketing, the EU does have competence, so that would be an opportunity.

JF: So a combination of EU level and national level measures on this topic should be implemented?

Interviewee: Yes. What the EU can do is to provide recommendations of policy tools for member states to implement so the EU can definitely help national countries facilitate this shift through the use of soft law.

Reducing meat consumption

Julia Francken

Informed consent form

